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(NATURAL HISTORY)

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VOL. IX
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THE EARLY LITERATURE ON MALLOPHAGA

(PART IV, 1787—1818)

BRITISH MUSEUM
21 MAR 1960
NATURAL HISTORY

THERESA CLAY and G. H. E. HOPKINS

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Pp. 1–61 ; *Plates* 1–6 ; 94 *Text-figures*

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THE EARLY LITERATURE ON MALLOPHAGA (PART IV, 1787–1818)

By THERESA CLAY AND G. H. E. HOPKINS

SYNOPSIS

This, the fourth and final part of the series of papers reviewing the species of Mallophaga described between 1758 and 1818, deals with publications by J. C. Fabricius (1787, 1794, 1798, 1805); G. W. F. Panzer (1798); F. v. P. Schrank (1802, 1803); J. Fr. M. von Olfers (1816) and C. L. Nitzsch (1818).

INTRODUCTION

We have been criticized for changing well-established names and we readily admit that in a few instances we made changes which we would not now make. The reason for our action is that at one time the members of the International Commission on Zoological Nomenclature were reluctant to use their plenary powers to preserve a better-known junior synonym from replacement by an older name for the same animal, and in these circumstances it seemed to us to be desirable that all changes which were likely to be considered necessary by future workers on Mallophaga should be made as soon as possible, while the number of people working on the group was still limited and when a comprehensive list (our *Checklist of Mallophaga*) was about to be published, rather than that changes in the older names should be made piecemeal in the future. Even now that the Commission is more sympathetic to applications intended to avoid unnecessary name-changes, it is a major operation to obtain the suppression of a senior synonym in favour of a better-known junior one, and such applications are doubtfully justified unless serious confusion would result from the change which it is desired to avoid. Although we agree that in a few instances we would take a different view about certain names if we were dealing with the matter again, we would feel more sympathy with the criticisms if the critics had ever made an appeal to the Commission to preserve any of the names of which they deplore the disappearance.

We also expect criticism for designating neotypes in instances in which the name involved is not in current use, since the concensus of opinion of the 1958 Colloquium on Zoological Nomenclature was strongly against this practice. But we are convinced that the objection was to the revival of disused names in places of junior names which are in current use, and not the safe disposal of junior names as synonyms of senior ones, which is our intention. We hope that this will be made clear when the new International Rules of Zoological Nomenclature are published, but in any case we think that other workers will eventually come to share our views about the importance of getting rid of such names if they do not do so already. In particular we have, wherever possible, designated as neotype of a junior subjective synonym the lectotype or neotype of the same species under its valid name.

MEASUREMENTS. All measurements are made from specimens mounted in canada balsam ; unless otherwise stated, total length is taken along the mid dorsal line, except for the genitalia where it is the greatest length ; breadth is the greatest width.

SETAE. In addition to the number and position of the setae, their length and thickness are often diagnostically important for the species ; this last character is difficult to show accurately, especially at the magnification at which it is necessary to draw most of the figures. It has usually been necessary to enlarge the thickness of the setae relative to the rest of the structures in the figures in order to enable the smaller and thinner ones to be reproduced ; an attempt has been made in each figure to make the thicknesses of the setae relative to each other correct.

FABRICIUS, 1787

(*Mantissa insectorum.* Hafniae. Vol. 2 : 368–371).

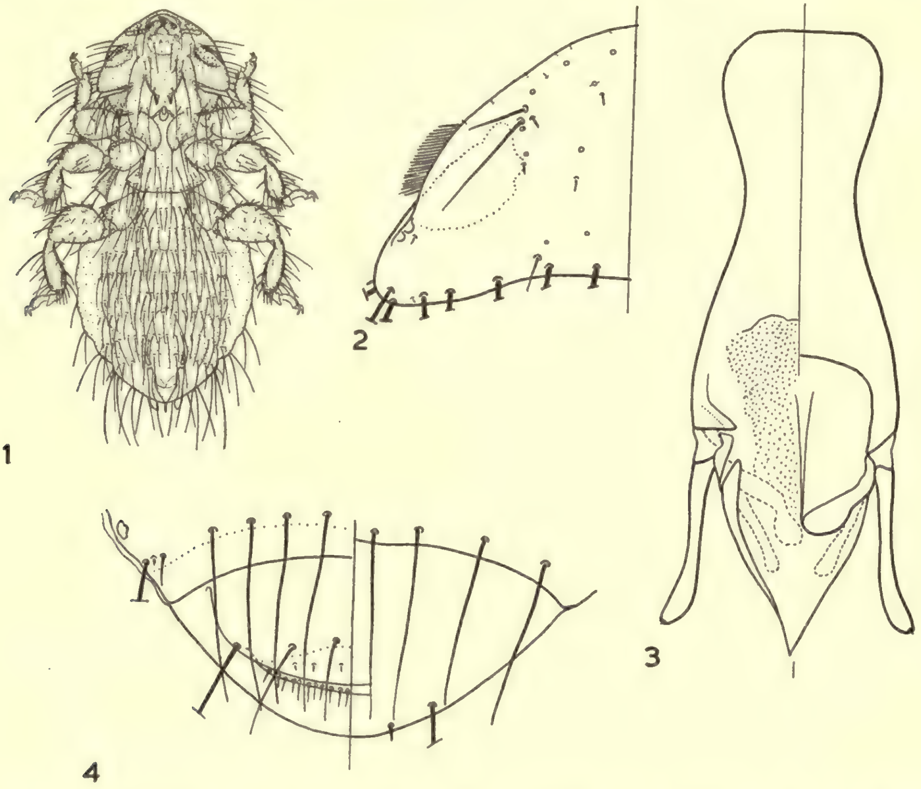
The usual Fabrician list containing infinite repetition and only one name with which we have not already dealt.

Pediculus vagelli (p. 369)

The very unsatisfactory description states that this species is "*Magnus, ovatus totus pallidus, thorace solo lineis duabus postice coeuntibus nigris*". The host is *Procellaria glacialis* (= *Fulmarus g. glacialis*). Fabricius gives a reference to Mohr and it is possible that he was redescribing *Pediculus procellariae* Mohr, 1786, nec Fabricius, 1775 (see Clay & Hopkins, 1954 : 264). Although the description of *vagelli* is so bad it is diagnostic. The mention of a thorax rules out the Ixodidae and the only louse occurring on *Procellaria* that at all fits the description is *Ancistrona*, as has long been recognized.

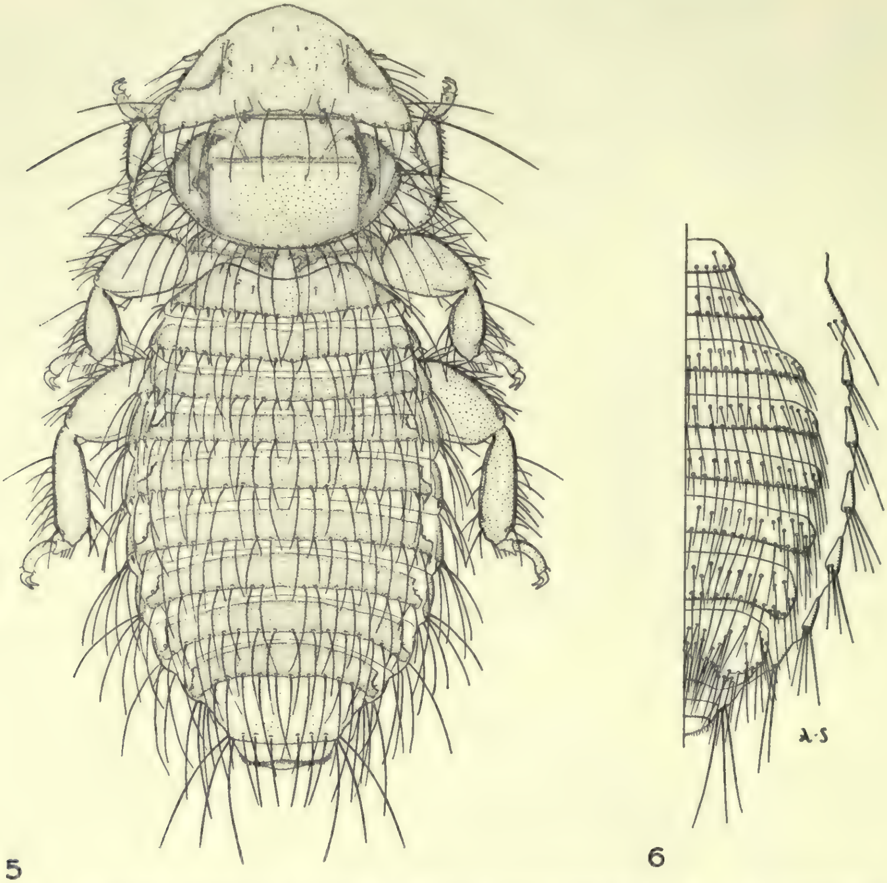
The specimens seen from various species of Procellariformes appear to represent only one species, but males have been seen from only *Fulmarus glacialis*, *Puffinus tenuirostris* and *Daption capense*, from the last host a single male in poor condition. It is possible that further study based on more material may reveal subspecific differences.

MALE. There is strong sexual dimorphism in this species, the male being smaller (cf. Text-figs. 1 and 5), less heavily sclerotized and the gular plate much reduced. The anterior margin of the head (in both sexes) may appear more or less pointed probably due to distortion during preparation. The oesophageal and lingual sclerites of the hypopharynx are reduced (in both sexes) and the epipharyngeal "pestle" is not apparent. Dorsal setae and sensilli of the head as shown in Text-fig. 2 ; these are useful specific characters in the probably related genus *Austromenopon* (see Clay, 1959 : 158). The dorsal chaetotaxy of the prothorax is similar to that of the female but there are fewer (2–3 each side) spine-like marginal setae on the anterior part. Terga with a single row of setae, one specimen showing the following numbers: I, 17; II, 16; III, 18; IV, 15; V, 16; VI, 16; VII, 17; VIII, 14; in all these segments the seta next to the post-spiracular seta (not included in the counts) each side is spine-like and on segments VI–VIII next to the spine-like seta each side is a short fine seta. Ventral abdominal setae as in Text-fig. 1; setae of segments IX–XI dorsal and ventral as in Text-fig. 4. Male genitalia as in Text-fig. 3; the shape and position of the sclerites of the genital sac vary according to the position in the mounted specimen and with the amount of protrusion of the sac; the shape of the parameres also appears variable owing to distortion during preparation.



Figs. 1–4. *Ancistrona vagelli* (Fabricius), male. 1. Ventral (R. S. Pitcher del.). 2. Head dorsal, thickness of marginal setae somewhat exaggerated. 3. Genitalia. 4. Terminal segments of abdomen.

Female. As shown in Text-figs. 5–6; dorsal head setae and sensilli as in male, but in addition there are groups of minute setae. Ventral view of head including characteristic gular plate as shown in Kéler, 1952 : 206. There is some variation in the number and size of the dorsal abdominal setae.



Figs. 5–6. *Ancistrona vagelli*, female. 5. Dorsal, same scale as Fig. 1 (R. S. Pitcher del.). 6. Abdomen, ventral (Arthur Smith del.).

Measurements in mm.

	Male (neotype)		Female (neallotype)	
	Length	Breadth	Length	Breadth
Head	0·57	1·17	0·87	2·02
Prothorax	—	1·00	—	1·95
Metathorax	—	1·00	—	2·13
Abdomen	1·68	1·25	3·43	3·18
Total	3·20	—	6·15	—
Genitalia*	0·90	—	—	—

* Not neotype.

Neotype male of *Ancistrona vagelli* (Fabricius) slide No. 13728 in British Museum (Natural History) from *Fulmarus g. glacialis* (Linn.) from Shetland, British Isles, August 1939; neallotype female, slide No. 643 from the same subspecies of host from Hoy, Orkney, British Isles, August 1938. *Neoparatypes*: 12♂, 46 ♀ from the same host form from the British Isles (Shetlands, Orkneys, St. Kilda), and Iceland.

J. C. FABRICIUS, 1794

(*Entomologia systematica. Hafniae.* Vol. **4**: 418–424).

Sheer repetition, without anything new.

J. C. FABRICIUS, 1798

(*Supplementum entomologiae systematicae. Hafniae.* Pages 570–571).

Only four species are dealt with in this work, but all are put forward as new and all are accompanied by brief but fairly adequate descriptions.

Pediculus lanii (p. 570)

The description quite clearly refers to a *Philopterus* and the host is *Lanius collurio*. We consider this name to be a synonym of *Philopterus coarctatus* (Scopoli).

Neotype of *Philopterus lanii* (J. C. Fabricius, 1798), the male neotype specimen of *Philopterus coarctatus* (Scopoli, 1763), designated by Clay & Hopkins, 1951 : 6.

Pediculus pici (p. 571)

The description certainly applies to a member of the Ischnocera and the host is *Picus viridis*. Of the two genera of the Ischnocera found on this host the description agrees most nearly with *Penenirmus*, which is also the commoner of the two.

Docophorus scalaris Burmeister, 1838, described from Nitzsch's specimens and later figured in Giebel, 1874 (pl. 10, figs. 1 and 2) is also a *Penenirmus*: the hosts were originally given as *Picus viridis, canus, medius*. As the types of *scalaris* have been destroyed a neotype specimen from *Picus viridis* will be designated, thus restricting the name and making it a synonym of *P. pici* (Fabricius).

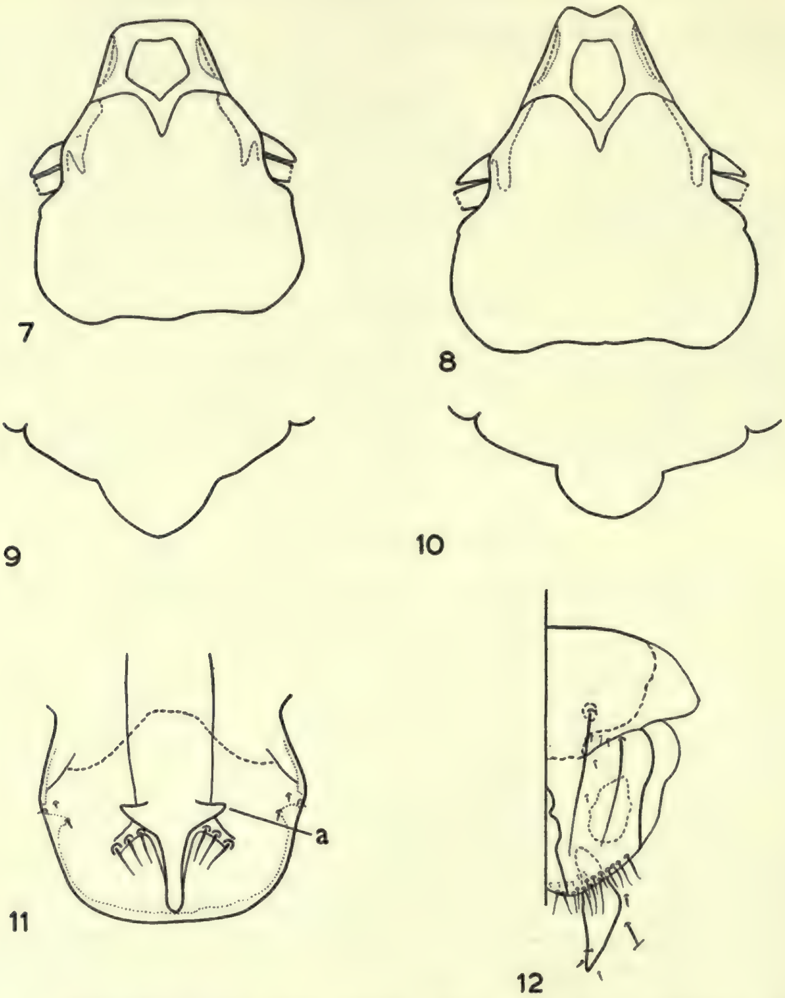
Penenirmus pici is near *auritus* (Scopoli), perhaps not more than subspecifically distinct, but a decision on its status must wait for a revision of the species of *Penenirmus* from the Picidae. The two forms can be distinguished in both sexes by the proportions of the preantennal region of the head, the anterior dorsal plate, and the outline of the hyaline margin (Text-figs. 7–8), by the shape of the last abdominal segment in the male (Text-figs. 9–10) and by the greater number of tergal setae in *pici* (see below).

MALE. General characters as shown in Pl. I, fig. 1; Head as in Text-fig. 8; as in all known species of *Penenirmus* from the Picidae the gular plate is divided horizontally. Mesosternum and metasternum each with 2 central setae; pterothorax with 5 setae and a lateral spine-like seta each side of the posterior margin. Tergal plates II[1]–VII and fused IX–X entire, with II–III medially indented. Sternite

---

[1] II is the first apparent segment.

II small and irregular in shape ; each of sternites III–VI is a horizontally elongated plate. Comparison of the male genitalia of *pici* (Pl. I, fig. 3) and *auritus* is difficult ; a detailed figure of individuals of both species would be misleading owing to individual variation and distortion. Examination of a number of specimens belonging to each form suggests that the only constant difference is the length of the penis which is somewhat longer in proportion to the endomeral plate in *pici* ; the sclerites (Text-fig. 11, *a*) at the base of the penis may be somewhat larger in *pici*, but the



FIGS. 7–12. ***Penenirmus***. 7–8. Outline of head, male. 7. *P. auritus* (Scopoli). 8. *P. pici* (Fabricius). 9–10. Outline of last abdominal segment, male. 9. *P. auritus*. 10. *P. pici*. 11–12. *P. pici*. 11. Male genitalia. 12. Genital region of female.

appearance of these is so dependent on their position after the preparation of the specimen that much of the apparent variation in their size and shape seems to be illusory and due to accidents of mounting.

FEMALE. General characters as shown in Pl. I, fig. 2. Thoracic chaetotaxy and sternites II–VI as in male ; tergal plates II–X entire. Genital region (Text-fig. 12) apparently as in *auritus*, but subvulval sclerites somewhat stouter. It should be noted that the outer part of the genital plate is unpigmented and the shape therefore appears different in figures according to whether the outer part is or is not shown.

CHAETOTAXY OF THE ABDOMEN. As in *auritus*, there are in both sexes post-spiracular setae on segments III–VII with contiguous sensilli on III–V. Tergocentral setae in both sexes : II, 4–6 and two long anterior setae (also present in *auritus*) ; III–VI, 6–10 ; VII, 4–7 ; VIII, 2 (in the female, 2–4), X, 3–4 ; in the male total number of dorsal and ventral setae on the last segment varies from 13–15. In *auritus* the tergocentral setae are 4 in number on II–VII and 2 on VIII, with the occasional segment in the occasional specimen having an extra seta. Sternocentral setae as in *auritus* : II–VII, 2 ; pleural setae as in *auritus* : II–III, 0 ; IV–V, 1 ; VI, 2–3 ; VII, 2 ; VIII–IX, 3 ; in the female, X has 2 each side.

Male

	Length		Breadth	
	Range	Mean	Range	Mean
Head (5)	0·59–0·60	0·595	(14)0·47–0·54	0·51
Prothorax (5)	—	—	0·31–0·33	0·32
Pterothorax (5)	—	—	0·50–0·55	0·53
Abdomen (4)	1·07–1·12	1·097	0·70–0·75	0·72
Total (4)	1·97–2·05	2·008	—	—
Genitalia (1)	0·33	—	—	—
C.I. (5)	0·84–0·90	0·88	—	—

Female

	Length		Breadth	
	Range	Mean	Range	Mean
Head (5)	0·65–0·67	0·66	(19)0·52–0·60	0·56
Prothorax (5)	—	—	0·33–0·37	0·35
Pterothorax (5)	—	—	0·58–0·63	0·60
Abdomen (5)	1·32–1·37	1·33	0·80–0·90	0·83
Total (5)	2·28–2·40	2·25	—	—
C.I. (5)	0·87–0·91	0·89	—	—

Neotype male (Pl. I, fig. 1) and *neallotype* female (Pl. I, fig. 2) of *Penenirmus pici* (J. C. Fabricius) from *Picus viridis* Linn from Estonia (Meinertzhagen Collection, British Museum (Natural History), slide No. 1594*a*). *Neoparatypes* : 16 males and 28 females from *Picus viridis* from Estonia and England.

Neotype of *Docophorus scalaris* Burmeister, 1838 the neotype specimen of *Penenirmus pici* (J. C. Fabricius) designated above.

Pediculus anatis (p. 571)

There is an independent description, but the species is the same as that described by Schrank (1781) under the same name and the host (" Anas Boshas ") is also the same. Since *P. anatis* J. C. Fabricius is not only a synonym of *Anaticola crassicornis* (Scopoli) but also a homonym of *A. anatis* (Schrank), we would have thought it superfluous to erect a neotype for it but for the fact that Nitzsch (1818, p. 292) renamed it *Philopterus* (*Lipeurus*) *squalidus*.

Neotype of *Anaticola anatis* (J. C. Fabricius) the neotype specimen of *Anaticola crassicornis* (Scopoli) designated by Clay & Hopkins, 1951 : 19.

Pediculus tantali (p. 571)

The host is *Tantalus* (= *Ibis*) *leucocephalus* and the syntypes are in the Universitetets Zoologiske Museum in Copenhagen. Through the kindness of Dr. S. L. Tuxen it has been possible to examine these specimens and other Fabrician type material. The syntypes comprise two males and two females (one of the females being headless) and are labelled " Tranquebaria Daldorff ". These specimens have been mounted in Canada balsam and the male specimen shown in Pl. VI, fig. 3 is here designated as lectotype and the slide has been so labelled ; a female is shown in Pl. VI, fig. 4 This species will be dealt with fully by Dr. B. K. Tandan in his revision of *Ardeicola*.

Lectotype of *Ardeicola tantali* (J. C. Fabricius) male (Pl. VI, fig. 3) in the Universitetets Zoologiske Museum, Copenhagen.

G. W. F. PANZER, 1798

(*Faunae Insectorum Germaniae Initia oder Deutschlands Inseckten, Heft* **51** : 17–24).

This work consists of coloured drawings accompanied by text confined to host-records and references to descriptions by previous authors. In the titles of the drawings all the Linnean species are ascribed to Fabricius, though references to Linné's descriptions are given in the text. No species are described as new, but several are misidentified. The only importance of the work is that several of the drawings are quoted by Nitzsch in 1818, and these will be dealt with, where necessary, in our discussion of his paper.

SCHRANK, 1802

(*Briefe naturhistorischen, physikalischen und oekonomischen Inhaltes an Herrn Nau. Erlangen.* Page 361).

This work which was brought to our notice by Dr. W. Eichler, contains the description of only one species of Mallophaga, (*Pediculus phaeopodis*), omitted from the recent literature until 1952. This is an *Austromenopon* and a description is given in Clay, 1959 : 165, where a neotype for the species is designated.

SCHRANK, 1803

(*Fauna Boica. Landshut.* Vol. 3, pt. 1 : 186–194).

The descriptions in this publication are much shorter than those in Schrank's earlier works and there are no figures. Most of the names, including a few unnecessary *nomina nova*, have already been dealt with, but a considerable number are new.

Pediculus mustelae (p. 186)

The host is "gemeinen Wiesel" (= *Mustela n. nivalis* Linn., since Schrank's material must be assumed to have been from Bavaria), and the brief description is quite sufficient to indicate a Trichodectid of the type commonly found on this host.

Although there has never been any reasonable cause for doubt as to the identity of Schrank's species, the nomenclature has been thoroughly and unnecessarily thrown into confusion. Nitzsch (1818 : 246) started the process by proposing *Trichodectes dubius* as a *nomen novum* for Shrank's species, and Denny confused under Nitzsch's name the two quite separate species found on the weasel and on the stoat. Giebel (1861 : 88 ; 1874 : 55) proposed *Trichodectes pusillus* as a *nomen novum* for *T. dubius* Nitzsch, giving as host both weasel and stoat though admitting that he had seen no material from the latter. Piaget (1880 : 387, pl. 31, fig. 8) added greatly to the confusion by including three quite distinct species under the name *retusus* ; his description and figure seem to be based mainly on *mustelae* but the only specimen in the portion of his collection preserved at the British Museum is a female from a stoat. Harrison (1916) restored Schrank's name, though accepting Piaget's erroneous synonymy. Kéler (1938 : 429, figs. 22, 23) redescribed *mustelae* from Nitzsch's material and made it the type species (under the synonym *pusillus*) of his new genus *Stachiella*, which we consider to be at most a subgenus of *Trichodectes*.

Since *Trichodectes dubius* Nitzsch is a *nomen novum* for *Pediculus mustelae* Schrank, and *T. pusillus* Giebel is a *nomen novum* for *T. dubius* Nitzsch, the neotypes we erect for *mustelae* are necessarily also neotypes of *dubius* and *pusillus*.

We designate as neotype of *Trichodectes mustelae* (Schrank) the female[1] and as neallotype the male specimens in the Nitzsch collection in the Zoological Museum of Halle University which Kéler utilized for his figures of the species (Kéler, 1938 : 429, figs. 22, 23) and as neoparatypes the other specimens from *Mustela n. nivalis* in the Nitzsch collection.

Pediculus ovis arietis (p. 187)

This is merely a renaming of *Pediculus ovis* Schrank, 1781 and has already been dealt with under *Damalinia ovis* (in Clay & Hopkins, 1954 : 255).

Pediculus collurionis (p. 187)

This species has already been dealt with under *Philopterus coarctatus* (Scopoli), of which we consider it to be a synonym (Clay & Hopkins, 1951 : 6).

---

[1] In this genus the female is more diagnostic than the male.

Neotype of *Philopterus collurionis* (Schrank) the neotype specimen of *Philopterus coarctatus* (Scopoli) designated by Clay & Hopkins, 1951 : 8.

Pediculus pici (p. 188)

The host is "Schwarzspecht" (*Dryocopus martius*) and the description almost certainly refers to a *Penenirmus*, but as the name is a homomyn of *Pediculus pici* J. C. Fabricius, 1798 and probably a synonym of *Penenirmus heteroscelis* (Nitzsch), 1866 the name need not be further discussed.

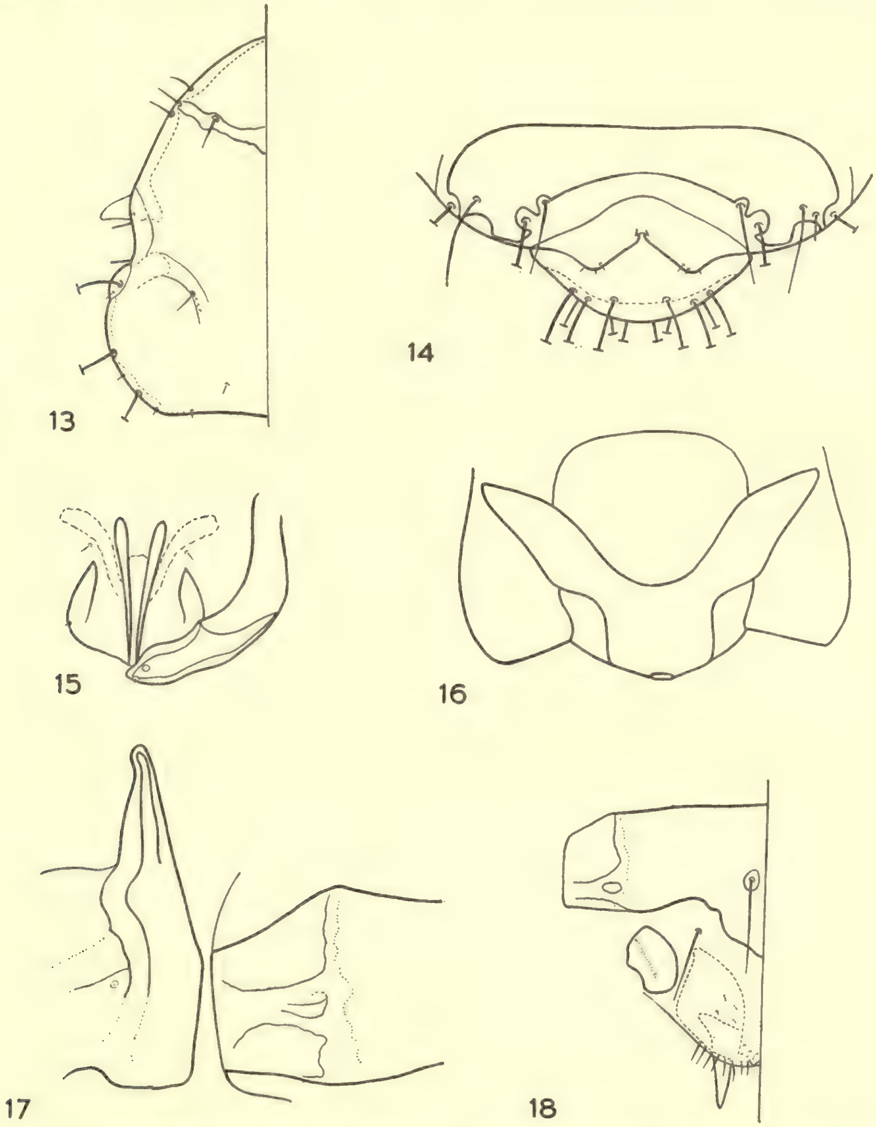
Pediculus upupae (p. 189)

The host is "Wiedehopf" (= *Upupa e. epops* Linn.) and the description fits almost perfectly Piaget's figure (Piaget, 1880, pl. 12, fig. 7) of *Nirmus melanophrys* N., from the same host : Giebel's descriptions (1866 : 369 ; 1874 : 146) leave little room for doubt that Piaget's identification of *melanophrys* was correct, especially as this is the only species of Ischnocera which appears to occur normally on this host. Moreover a rough sketch of *melanophrys* in Nitzsch's manuscript seems to represent this species. Denny (1842 : 45, 92, pl. 8, fig. 1) described as new the same species from the same host under the name *Docophorus upupae* ; the syntypes of *upupae* Denny and Piaget's specimens labelled *melanophrys* are in the British Museum (Natural History) and are the same as *upupae* Schrank described below. Harrison (1916) places *upupae* Schrank in *Philopterus* and *upupae* Denny in *Degeeriella* with *melanophrys* as a synonym ; the species is neither a *Philopterus* nor a *Degeeriella* and (under the name *melanophrys*) has been made the type species of *Upupicola* (Clay and Meinertzhagen, 1939 : 165).

Upupicola is a monotypic genus belonging to the *Degeeriella* complex (see Clay, 1958) and is distinguished by the presence of a dorsal preantennal suture, the form of the temporal carinae and the lateral thickening of the abdomen ; the male genitalia are of the typical degeerielline form.

MALE. General characters as shown in Pl. II, fig. 1 ; dorsal characters of the head as shown in Text-fig. 13 ; dorsal preantennal suture has a posterior central prolongation which varies in depth and width ; temporal carina passes posteriorly from the preocular nodus but does not reach occipital margin ; ocular setae and two of the marginal temporal setae each side elongated. Prothorax with one elongated seta each side of posterodorsal margin ; pterothorax with lateral spine-like seta and elongated seta each side and four setae in two groups of two each side of the dorsal posterior margin. Two meso- and two metasternal setae. Tergum of pterothorax divided medially almost to posterior margin ; meso-metasternal plate flask-shaped. Tergal plates II–X complete across the segments, but II–IV have partial divisions centrally. Terminal segments as in Text-fig. 14. Sternal plate II is a central, nearly rectangular plate, III–VII are complete across segments ; remaining sternites form a narrow central genital plate with a lateral sclerite each side of VIII. Lateral abdominal thickening characteristic (as in Text-fig. 17) and formed partly from internal dorsal thickening (pleural, see Clay, 1958 : 127) and partly from internal thickening at the lateral edge of the sternites. Male genitalia as in Text-figs. 15–16; dorsal endomeral arms (Clay, 1958 : 127) vary in height.

Female. General characters as in Pl. II, fig. 2. Thoracic setae, tergum of pterothorax and meso-metasternal plate, abdominal tergites II–VIII, sternites II–VI and lateral abdominal thickening as in male. Terminal sterna of abdomen as in Text-fig. 18.



Figs. 13–18. *Upupicola upupae* (Schrank). 13. Head of male, dorsal. 14. Terminal segments of male abdomen, dorsal. 15. Male genitalia, ventral. 16. Endomeral plate, dorsal (enlarged). 17. Inner view of lateral parts of tergum (left) and sternum (right) of segment V, female. 18. Female genital region.

Chaetotaxy of abdomen. Post-spiracular setae on segments III–VIII, with sensilli on segments III–V. Tergocentral setae II, 4–6 with two anterior setae; III–VI, 6–7; VII–VIII, 4–7. Pleural setae: II–III, 0; IV–V, one each side; VI–VII, 3 each side; VIII, 3. Sternocentral setae: II–VI, 6–7, rarely 4 or 5 on one or two segments. In the male VII–VIII, 2; last segment, one long and one spine-like seta each side; total number of marginal setae of last segment dorsal and ventral varies from 12–16. Sternal setae of VII–XI in the female as in Text-fig. 18.

Measurements in mm.

Male

	Length		Breadth	
	Range	Mean	Range	Rean
Head (20)	0·44–0·53	0·487	0·38–0·44	0·416
Prothorax (1)	—	—	0·25	—
Pterothorax (1)	—	—	0·43	—
Abdomen (1)	1·30	—	0·61	—
Total (1)	2·10	—	—	—
Genitalia (1)	0·38	—	—	—
C.I.	0·80–0·89	0·85	—	—

Female

	Length		Breadth	
	Range	Mean	Range	Mean
Head (20)	0·50–0·56	0·53	0·43–0·48	0·454
Prothorax (1)	—	—	0·27	—
Pterothorax (1)	—	—	0·47	—
Abdomen (1)	1·44	—	0·64	—
Total (1)	2·28	—	—	—
Genitalia	—	—	—	—
C.I.	0·82–0·89	0·85	—	—

Neotype male (Pl. II, fig. 1) and neallotype female (Pl. II, fig. 2) of *Upupicola upupae* (Schrank) in the British Museum (Natural History), slide No. 650, from *Upupa e. epops* Linn. from Hodonin, Czechoslovakia collected (11.vi.1953) and presented by Dr. František Balát. *Neoparatypes*: 45 ♂, 49 ♂ from the same species of host from France, Italy, Portugal, Czechoslovakia, Asia Minor, Pakistan and India.

Lectotype of *Docophorus upupae* Denny, 1842: male in the Denny Collection British Museum (Natural History), slide No. 225. *Paratypes*: 1 ♂, 5 ♀.

Pediculus chloropodis (p. 189)

The host of this species is given in one place as "Blasshuhn" (*Fulica a. atra* Linn.) and in another as "rothschnabligen Wasserhuhn" (*Gallinula c. chloropus* (Linn.)). However, as the specific name is *chloropodis* it can be assumed that the host was *Gallinula chloropus*. The statement in the description that the insect is larger than the largest human louse and runs uncommonly fast seems to exclude all parasites of *Gallinula* except *Laemobothrion* and, allowing for certain discrepancies in the description, this describes well nymphs of *Laemobothrion* from *Gallinula chloropus brachyptera*. Although we have specimens of *Laemobothrion* from subspecies of *Gallinula chloropus* from Africa, India and Brazil (see below, p. 55) : we have none from the European form, *Gallinula c. chloropus* ; there is little doubt that this would be the same as that from the African and Indian forms but the neotype must be based on a specimen from this subspecies.

Present status of *Pediculus chloropodis* Schrank : *Laemobothrion chloropodis* (Schrank, 1803).

Pediculus vanelli (p. 190)

This species has already been discussed under *Pediculus junceus* (Scopoli) of which we consider it to be a synonym (Clay & Hopkins, 1951 : 24. It seems relevant to note that *Nirmus vanelli* Denny, the type species of *Quadraceps*, is a totally distinct species and a synonym of *Quadraceps hospes* (Nitzsch).

Neotype of *Quadraceps vanelli* (Schrank) the neotype specimen of *Quadraceps junceus* (Scopoli) designated by Clay & Hopkins, 1951 : 24.

Pediculus tringae (p. 190)

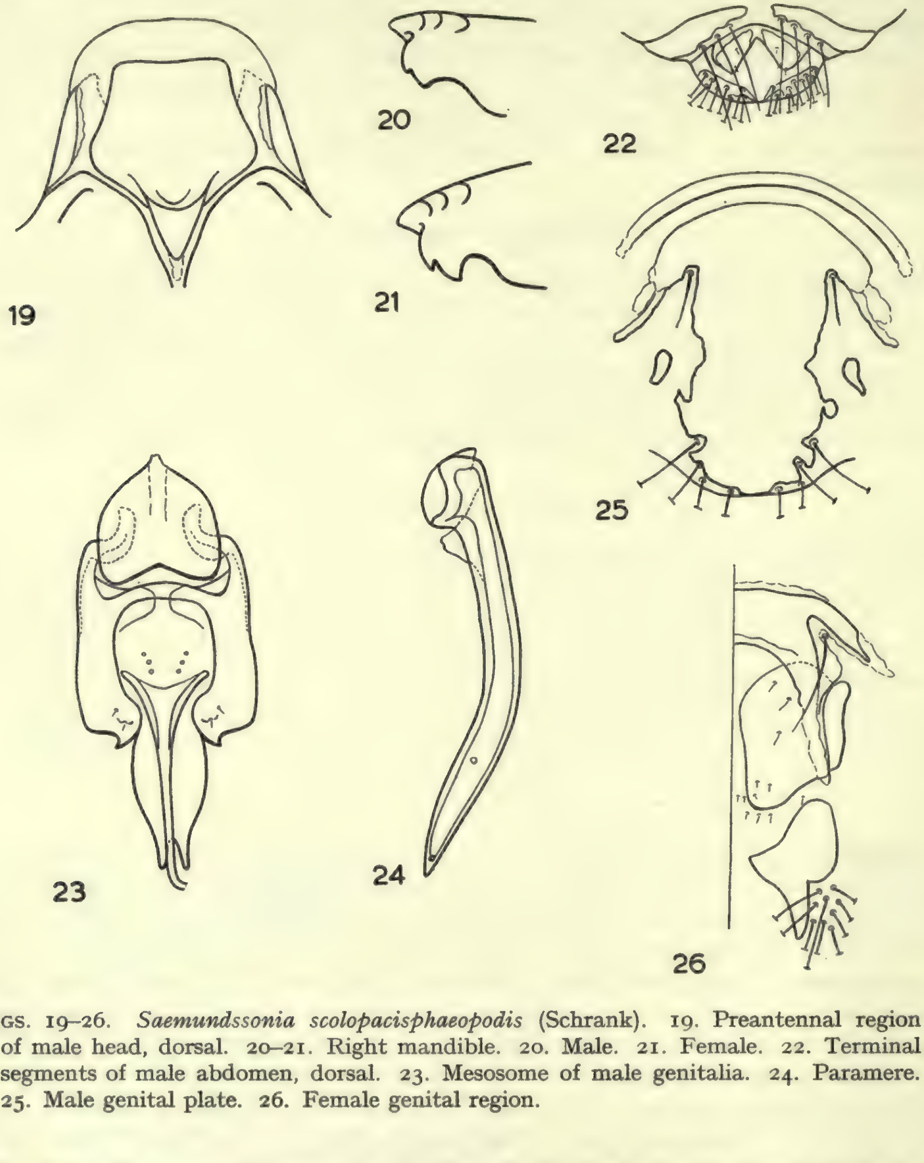
The description is particularly poor and the host is given in one line as " Geissvogel " (= *Capella gallinago*) and in the next line as " Kybiz " (= *Vanellus vanellus*). Harrison (1916, p. 19) places the name as a synonym of *junceus* Scopoli, but as Schrank states that his species is close to the " Truthennenlaus " (= *Chelopistes meleagridis*) this synonymy seems quite impossible.

Fortunately *Pediculus tringae* Schrank 1803 is a homonym of *Pediculus tringae* O. Fabricius 1780, so that further discussion of it would serve no useful purpose.

Pediculus scolopacis phaeopodis (p. 191)

This species is from " Regenvogel " (= *Numenius p. phaeopus*). The description is brief, merely stating that the insect is flattened, oval, the head bluntly heart-shaped with three long setae in the neighbourhood of the eye and one close to the antenna, that the thorax is axe-shaped, and that the insect is of the size of a small human louse but exceptionally flat. This description, however, is much more diagnostic than would appear at first sight. An oval species with a bluntly heart-shaped head found on *Numenius* could only be a *Saemundssonia* or a *Cummingsiella*, the metathorax of either of which could be described as axe-shaped, but the head of the *Saemundssonia* fits the description " bluntly heart-shaped " distinctly better than does that of *Cummingsiella*. Furthermore, although a species of *Cummingsiella* is stated to occur on *Numenius phaeopus* we have failed to find it on any specimens of this host which we have examined, and its rarity renders improbable any suggestion that this was the species which Schrank had. We therefore conclude that Schrank's species must have been the *Saemundssonia* which is common on this host.

Harrison (1916, p. 18) states that the present species is probably the same as *Docophorus* "*rotundatus* Nitzsch", by which we assume that he meant *D. rotundus* Rudow, for there is no such species as *D. rotundatus* Nitzsch and none of the three forms for which Piaget used the name is from a wader. *Docophorus rotundus* Rudow is also from *Numenius phaeopus* and although Rudow's description is little better than Schrank's we can find nothing in it which suggests that the two species are not the same.



Figs. 19–26. *Saemundssonia scolopacisphaeopodis* (Schrank). 19. Preantennal region of male head, dorsal. 20–21. Right mandible. 20. Male. 21. Female. 22. Terminal segments of male abdomen, dorsal. 23. Mesosome of male genitalia. 24. Paramere. 25. Male genital plate. 26. Female genital region.

This is the third earliest species of *Saemundssonia* to be described from the Charadrii and is distinguished from the other two, *S. haematopi* (Linn.) and *S. tringae* (O. Fabricius) by the shape of the head and male genitalia. The individuals of the population found on *Numenius arquatus* do not seem to be distinguishable except perhaps on size (see below) and if this proves to be the case can be recognized as a subspecies, namely *Saemundssonia scolopacisphaeopodis humeralis* (Denny).

Male of *S. scolopacisphaeopodis*. General characters as shown in Pl. III, fig. 1. The tooth on the right mandible (a diagnostic character for *Saemundssonia*) is small (Text-fig. 20), but as is usual for the genus somewhat better developed in the female (Text-fig. 21). Anterior plate as in Text-fig. 19. Prothorax with one long seta at each latero-posterior corner; pterothorax with 18–24 long setae on the posterior margin and a lateral spine-like seta each side. Two meso- and two metasternal setae on the sternal plate which is of irregular and variable outline. Tergal plate II entire; III–XI divided medially. Sternite II is a small irregular central sternite not always apparent; III in the form of a small irregular shaped lateral sclerite each side; IV–VI each a narrow horizontally elongated sclerite; genital plate variable and irregular in outline (Text-fig. 25). Genitalia as shown in Pl. III, fig. 3; and Text-figs. 23–24; unlike *S. tringae* there are no setae arising from the 6 pustules which lie in the centre of the mesosome.

FEMALE. Similar to male in general characters but somewhat larger. Chaetotaxy of thorax as in male. Tergal plates II and IX–X entire; III–VIII and XI divided medially. Sternites II–VI each as a small irregular shaped lateral sclerite each side of segment. Genital region as in Text-fig. 26.

CHAETOTAXY OF ABDOMEN. Post-spiracular setae of male and female present on segments III–VII with contiguous sensilli on III–V. Tergocentral setae of male neotype; II, 7; III, 14; IV, 21; V, 17; VI, 12; VII, 3; VIII, 2; X, 6. Sternocentral setae: II–V, 2 (II–III not from neotype); VI, 4; VII, 2. Pleural setae: II, 0; III, 1 each side; IV, 2; V, 3; VI, 3 and 5; VII, 3 and 4; VIII, 4; IX, 3. Tergocentral setae of female neallotype: II, 9; III, 16; IV, 15; V, 18; VI, 19; VII, 14; VIII, 6; X, 5. Sternocentral setae as in male. Pleural setae: II, 0; III, 1; IV, 2; V, 2 and 3; VI, 3 and 5; VII, 4; VIII, 3 and 5; IX, 3 and 4.

Measurements in mm.

	Length				Breadth			
	Male			Female	Male			Female
		Range* (15)	Mean			Range (15)	Mean	
Head	0·67	0·60–0·66	0·63	0·72	0·70	0·66–0·74	0·70	0·81
Prothorax	—	—	—	—	0·38	—	—	0·41
Pterothorax	—	—	—	—	0·54	—	—	0·59
Abdomen	0·96	—	—	1·27	1·02	—	—	1·17
Total	1·90	—	—	2·29	—	—	—	—
Genitalia	—	0·77–0·87	0·82	—	—	—	—	—
C.I.	1·04	1·08–1·16	1·12	—	—	—	—	—

* Length and C.I. in this column does not include hyaline margin.

Ten males from *Numenius arquatus* have the following range of head-measurements: Length (not including hyaline margin), 0·65–0·68 mm.; mean, 0·67. Breadth, 0·75–0·79 mm.; mean, 0·77 mm. Twenty males taken from a single individual host collected in Uganda by G.H.E.H. and identified as *Numenius phaeopus* have a range and mean of head measurements similar to those of the specimens from *Numenius arquatus*, as follows: Length, 0·65–0·68 mm.; mean, 0·67. Breadth, 0·75–0·80; mean, 0·77.

Neotype male (Pl. III, fig. 1) and neallotype female of *Saemundssonia scolopacisphaeopodis* (Schrank, 1803) in the British Museum (Nat. Hist.) Collection (slide No. 20223*a*) from *Numenius p. phaeopus* (Linn.) from S. Uist, Scotland. *Neoparatypes*: 19 ♂ and 18 ♀ from *Numenius phaeopus* from the British Isles, Iceland, France and the Maldive Islands.

Pediculus fulicae (p. 191)

The host is given as "Rohrhuhn" and as "Blasshuhn", alternative names for *Fulica a. atra*. We have already discussed the species under *Pediculus fulicae* Linn. (Clay & Hopkins, 1950: 256) and noted that it is the *Incidifrons* to which we have restricted Linné's name. As *Pediculus fulicae* Schrank is a homonym of *P. fulicae* Linn. we think it unnecessary to erect a neotype for it.

Pediculus totani (p. 191)

The host is given as "Strandschnepfen", a name which applies to either the common or the dusky redshank, but in view of Schrank's choice of specific name we consider it certain that the host must have been *Totanus totanus*.

Harrison (1916, p. 19) rejected this name as unrecognizable, but a species with an anteriorly-rounded head which has a deep lateral inlet in the region of the eye and extends posteriorly into two almost heart-shaped lobes could be nothing but a *Colpocephalum s.l.*, and in view of the host must have been an *Actornithophilus*. Nothing in the rest of the description is at variance with this identification of Schrank's species, though it must be noted that what he took for the antennae were evidently the palpi. No other *Actornithophilus* has been described from *Totanus totanus*.

A neotype will be designated for *Actornithophilus totani* (Schrank) in a publication (Clay, in press) dealing with the species of *Actornithophilus* parasitic on the Charadrii.

Pediculus urogalli (p. 192)

Harrison (1916, p. 19) regarded this as a *nomen nudum*, but it is described (from memory!) as large, elongated and very common. The host is given as "Auerhahn" (= *Tetrao u. urogallus* Linn.).

We have failed to find in the Rules of Nomenclature anything dealing directly with the question of descriptions made from memory, and we suspect that the compilers of the Rules failed to foresee the possibility of descriptions being made so.

But we consider that for a name to be valid it must be the name of an organism and not of an author's memory of that organism and we therefore regard the name *Pediculus urogalli* Schrank as nomenclatorially unavailable.

Pediculus milvi (p. 193)

The naming of this species appears to have been almost accidental, but this does not affect its validity. It is a *nomen novum* for the " Hühnergeyerlaus " depicted by Frisch (" XI Stücke, Tab. 24 "). Frisch's figure represents a *Laemobothrion*, and Hühnergeyer = *Circus aeruginosus*, so we consider *Pediculus milvi* to be the common *Laemobothrion* of this host, which we have already identified as *L. circi* (Fourcroy).

Neotype of *Laemobothrion milvi* (Schrank) the neotype specimen of *Laemobothrion circi* (Fourcroy) designated by Clay & Hopkins, 1954 : 263.

Pediculus hirundinis (p. 193)

The description purports to be of *P. hirundinis* " Linn. faun. suec. n. 1963 ", but the latter (which we have dealt with in Clay & Hopkins, 1950 : 267) is from *Hirundo apus* (= *Apus apus*), whereas Schrank's species is from " Hausschwalbe " (= *Delichon u. urbica*).

Harrison (1916 : 15) takes the view that Schrank's species is " A Menoponid, probably = *Dennyus burmeisteri* Denny, not *Docophorus excisus* as quoted by Nitzsch, 1818, p. 290." We entirely disagree with this view, which is obviously due to confusion between *hirundinis* Linn. and *hirundinis* Schrank. The description of Schrank's species is brief and inadequate, but he mentions that the head is " zweylappig " anteriorly, a character which fits the *Philopterus* found on *Delichon urbica*, but excludes all other known genera of lice from either swallows or swifts.

Pediculus hirundinis Schrank 1803 is preoccupied by *Pediculus hirundinis* Pontoppidan 1763, and the species will be dealt with below as *Philopterus* (*Docophorus*) *excisus* Nitzsch 1818.

Pediculus chelidonius (p. 194)

The host is " Spurschwalbe " (= *Apus apus*) and the brief description states that the insect has a heart-shaped head, and almost linear body, and the two parts of the dorsum of the thorax are transversely elliptical. In the remarks following the description the species is stated to be very like the " Taubenlaus " as depicted by Redi (*Columbicola columbae*) but distinguished by the different structure of the two parts of the thorax.

Harrison (1916, p. 12) placed the insect in *Degeeriella s.l.*, but was unable to find a meaning for the name of the host.

As the description seems to be certainly that of a member of the Ischnocera and as no Ischnocera have ever, so far as we are aware, been reported from any of the swifts, *Pediculus chelidonius* is at best a hopelessly unrecognizable straggler, but (for reasons discussed under *prognes*, below) we think it much more probable that it is a chimaera, consisting of the head of one insect and the abdomen of another. We therefore regard the name as unavailable.

Pediculus prognes (p. 194)

This is first called the " Rauchschwalben L[aus] " (= louse of *Hirundo rustica*), and later the host is given as " Hausschwalbe " (= *Delichon urbica*). The description states : " Der Kopf spondonförmig ; der Hinterleib eyförmig, schwarz gefleckt, rückwärts allmählig sägezähnig und borstig." It is stated to be the same as *Pediculus hirundinis* Fabricius (1781, p. 483), which Schrank alleges to be different from *P. hirundinis* Linn.

Actually the species described by Linné and by Fabricius are identical, for the latter's description " pallescens, abdomine albo nigro maculato " is merely a shortening of Linné's " pallescens, abdomine obovato albo nigro contaminato lateribus setis posticis majoribus ". Schrank's error is obviously due to his having misidentified as *Pediculus hirundinis* Linn. the *Philopterus* of *Delichon urbica*.

With regard to Schrank's own descriptions, spontoons were of various shapes, but at least one common kind was of a shape very like that of the head of the *Bruëlia* found on the Hirundinidae. On the other hand, species of *Bruëlia* of this type do not have in either sex an abdomen that could possibly be considered egg-shaped. *Philopterus* is excluded by the fact that Schrank has described the *Philopterus* of the " Hausschwalbe " (as *Pediculus hirundinis*) on the previous page ; even if an interval elapsed between the writing of the two descriptions, during which he forgot he had described the *Philopterus*, we think he could not have failed to note the " zweylappig " head. The Amblycera are ruled out by the fact that none of them has a head remotely like any form of spontoon of which we have been able to find a drawing.

We can make nothing of this description, which does not fit any known parasite of either the Hirundinidae or Apodidae. The most likely possibility appears to us to be that by some error of transcription the description of the head given for *P. chelidonius* became attached to that of the abdomen of *P. prognes* and vice versa, because the combination head-of-*chelidonius* plus body-of-*prognes* would fit perfectly the *Dennyus* from *Apus apus*, while the reverse combination would agree excellently with a *Bruëlia* from *Delichon urbica*. Moreover, we find confirmation in evidence that suggests that the host-records got switched at the same time, for Schrank's usual practice was to name his lice after their hosts, and he is much more likely to have intended to use the name *chelidonius* for a louse of *Delichon* (at one time called *Chelidon urbica*) than for one from *Apus apus*.

We believe that our suggestion of a transposition of parts of these descriptions is extremely probable, and that the description of the head of one insect and the abdomen of another has no more validity than the description of any other chimaera. We therefore consider the name *Pediculus prognes* Schrank to be nomenclatorially unavailable.

J. C. FABRICIUS, 1805

(*Systema antliatorum*. Brunsvigae, pp. 340–349).

This is the usual Fabrician list of descriptions (mostly quoted from other authors) and references, but there are two new species.

Pediculus melis (p. 341)

The description is brief, but is sufficiently clear that there has never been any doubt as to the species intended, moreover the type material, one male and one nymph, is still in existence in the Universitetets Zoologiske Museum in Copenhagen. The male lectotype (by present selection) is the species re-described and figured by Kéler (1938 : 424–425, figs. 17, 18). Nitzsch (1818 : 295) proposed the entirely unnecessary *nomen novum Trichodectes crassus* for this species, otherwise it has remained without synonyms.

Lectotype of *Trichodectes melis* (J. C. Fabricius) male (Pl. IV, fig. 2) in the Universitetets Zoologiske Museum, Copenhagen.

Pediculus anserinus (p. 345)

As we have already pointed out (1950 : 239), *Pediculus anseris* Linn. (1758 : 612) was a composite of an *Anaticola* and a *Trinoton* and was restricted by J. C. Fabricius (1775 : 807) to the former. Almost simultaneously Sulzer (1776 : 241, pl. 29, fig. 4) also redescribed *Pediculus anseris* Linn; but his species is the *Trinoton* ; his action would have been a valid restriction of the name but that Fabricius' restriction is earlier. The host of Sulzer's species is " Gans ", which must be assumed to be *Anser anser domestica*.

Pediculus anserinus is in part a *nomen novum* for *anseris* Sulzer, but there is also a long description which is obviously that of the *Trinoton*. The host is *Anas anser* (= *Anser anser*, probably a wild bird).

Nitzsch (1818 : 300) renamed Sulzer's species *Liotheum* (*Trinoton*) *conspurcatum* and the synonymy will be discussed when we come to deal with Nitzsch's name. Harrison (1916 : 11) restored the name given to the species by Fabricius.

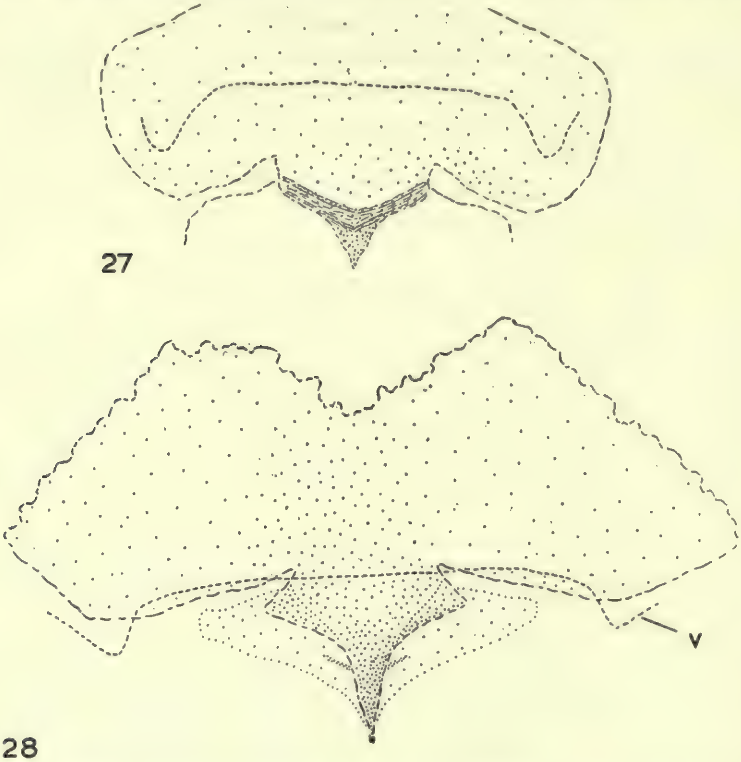
The type material in Copenhagen comprises two dried specimens of *Trinoton*, one of which (a male) has been mounted and is designated below as lectotype.

The species of *Trinoton* can be divided into four main groups as follows :

1.	Dorsal surface of hind head and prothorax without stout spine-like setae	*femoratum* Piaget
–	Dorsal surface of hind head and prothorax with stout spine-like setae	2
2.	Dorsal prothoracic spine-like setae less than 8 in number	3
–	Dorsal prothoracic spine-like setae more than 20	*aculeatum* Piaget
3.	Gular area without short stout spine-like setae	*gambense* group (of Tendeiro, 1958)
–	Gular area with short stout spine-like setae	*querquedulae* group

The *querquedulae* group can be separated by the character of the chaetotaxy into two, one (*querquedulae*) being found on *Anas* and related genera and one (*anserinum*) on *Anser* and related genera.

Trinoton anserinum from *Anser anser*, is distinguished from *T. querquedulae*, from *Anas crecca*, by size, by the chaetotaxy of the gular plate and ventral surface of the thorax (*anserinum* having more numerous setae of which proportionally fewer are spine-like) and by the small setae comprising the brushes of the 3rd femora and sternites IV and V being noticeably more numerous (Pl. IV, figs. 3–4). In the females there is a thickening in the dorsal wall of the genital chamber which projects below the vulva and which appears to be of diagnostic value in the separation of species. This thickening is indistinct in outline and not easily seen in specimens treated with caustic potash and was not shown in the figure of *querquedulae* in Clay & Hopkins (1950 : 244), however with the help of phase contrast it has now been possible to show the outline of the posterior part of this thickening (Text-fig. 27) for comparison with that of *anserinum* (Text-fig. 28).



FIGS. 27–28. Sclerotization of lower part of dorsal wall of genital chamber, drawn to same scale. v.—vulva. 27. *Trinoton querquedulae* (Linn.). 28. *T. anserinum* (Fabricius) from *Anser anser*, Manipur, India.

Whether or not it will be possible to recognize subspecific differences between the populations of *anserinum* from different species of hosts will have to wait for further material and a study of the variation in size and chaetotaxy within the populations.

Lectotype of *Trinoton anserinum* (J. C. Fabricius) male (Pl. IV, fig. 1) mounted in canada balsam in the Universitetets Zoologiske Museum, Copenhagen.

Measurements of Lectotype in mm.

	Length	Breadth
Head	1·02	1·56
Prothorax	—	1·18
Metathorax	—	1·62
Total	6·10	—
Genitalia (in situ)	2·72	—

OLFERS, J. FR. M. VON, 1816

De vegetativis et animatis corporibus in corporibus animatus reperiundis commentarius. Berlin. Part 1, pp. 80–97).

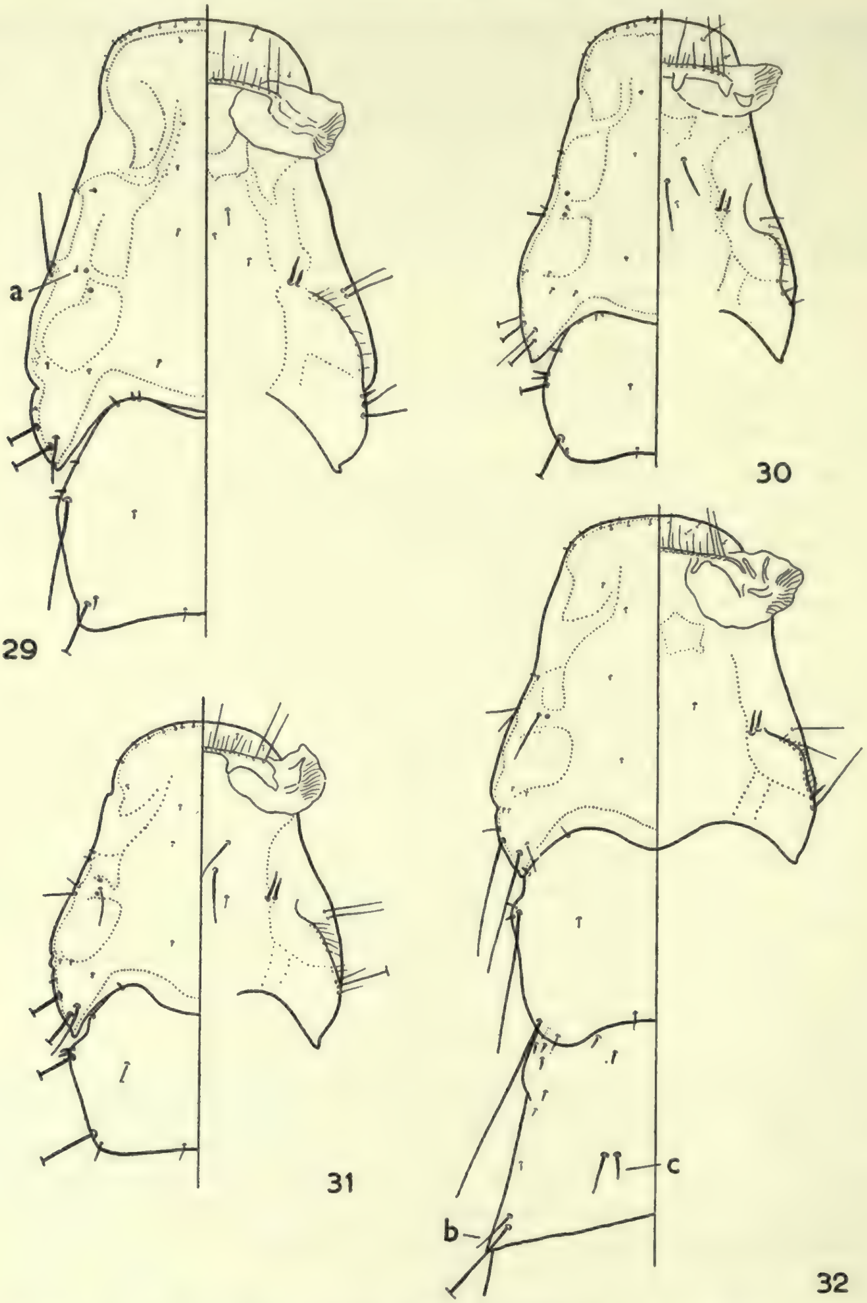
For the most part this work is a list of names and references, but there are brief descriptions of a number of species. In many cases it is difficult to decide whether the descriptions are independent, because a number of them appear to have been made from published drawings rather than from the insects themselves.

The work is in two distinct parts : on pages 86–91 Olfers describes a number of species (renaming most of them regardless of their already having valid names) and in this section he never derives the name of the parasite from that of the host. But on pages 92–97 he lists, with references, a number of " species inquirendae " under headings (such as " *Nirmus pavonis cristati* (*Var. albi*)") many of which at first sight look like names. The headings are invariably derived from the name of the host and the example we have given is particularly enlightening because it corresponds perfectly with Redi's " Pollino del pavone bianco " and Albin's " Louse of the white peacock ". We were convinced that these headings were never intended as names and that they are in Latin merely because the whole work is in that language, but for greater certainty we referred the question to the late Dr. K. Jordan, who was in agreement with our opinion. We have, accordingly omitted all mention of these headings, whose case is very similar to that of the " Pediculi Rhedi et Linnaei " listed by Fourcroy on pages 520–522 of his work.

It is of interest to note that there had been absolutely no advance in the generic classification of the Mallophaga between 1668 and 1816. Redi distinguished roughly between " Pollini " (Mallophaga) and " Pidocchi " (Anoplura), though he included the Mallophaga of mammals in the latter. De Geer made a slight advance when he included the Trichodectid of the dog in *Ricinus* among the Mallophaga, but Olfers goes back to Redi's arrangement placing the bird-Mallophaga in *Nirmus* but all the mammal-infesting species of both groups in *Pediculus*.

Pediculus bifurcatus (p. 83)

This appears to be an unnecessary *nomen novum* for *Pediculus porcelli* Schrank and *P. saviae* Schrank. As, however, the description is perhaps independent we think it necessary to erect a neotype, but in view of the fact that the name is in part



FIGS. 29–32. Head and prothorax of male *Ricinus*, drawn to same scale; maxilla, labium and details of gular region omitted; outline of internal thickening only approximate, varies in mounted specimens. 29. *R. dolichocephalus*. 30. *R. rubeculae*. 31. *R. fringillae*. 32. *R. elongatus*, dorsal view of pterothorax and abdominal segment I included. a, b, c setae referred to in text and Table I; seta b in Fig. 32 is short on one side of neotype.

a *nomen novum* of *P. porcelli* Schrank we have selected the neotype of the latter as neotype of *P. bifurcatum*.

Neotype of *Gliricola bifurcatus* (Olfers) the male specimen selected as neotype of *Gliricola porcelli* (Schrank) by Clay & Hopkins, 1954 : 254 (see entry no. 458, Official List of Specific Names in Zoology).

Pediculus setosus (p. 84)

The description seems to be independent and clearly refers to a sucking-louse, but it is small wonder that Giebel and others placed *setosus* as a synonym of the Trichodectid of the dog, because Olfers gives a reference to " Ricinus Canis Degeer ins. VII. tab. 4 f. 16."

The name, therefore, refers to a mixture of a sucking-louse which Olfers had before him and a chewing-louse which he had apparently not seen. It has long been correctly restricted to the former.

Pediculus sphaerocephalus (p. 85)

The description again seems to be independent, though there are references to *Pediculus ovis* of earlier authors. The author gives as host-record " capris, ovibus ", so it is exceedingly probable that his material included at least two species. The name (usually attributed to Nitzsch) was long applied to the species with which we have dealt as *Damalinia ovis* (Schrank).

Neotype of *Damalinia sphaerocephalus* (Olfers) the neotype specimen of *Damalinia ovis* (Schrank) designated by Clay & Hopkins, 1954 : 255.

Pediculus tauri (p. 85)

Although there is no description this name is not a *nomen nudum* as stated by Harrison (1916 : 19) but merely a reference to *P. tauri* Linn., 1761.

Genus Nirmus (p. 86)

This genus was erected by Hermann (1804 : 12) as a *nomen novum* for *Ricinus* De Geer, which Hermann considered to be preoccupied because of the use of the same name in botany. Neumann (1906 : 56), therefore, in designating *Ricinus fringillae* de Geer as type species of *Ricinus*, automatically made the same species the type of *Nirmus* Hermann.

Nirmus hasticeps (p. 87)

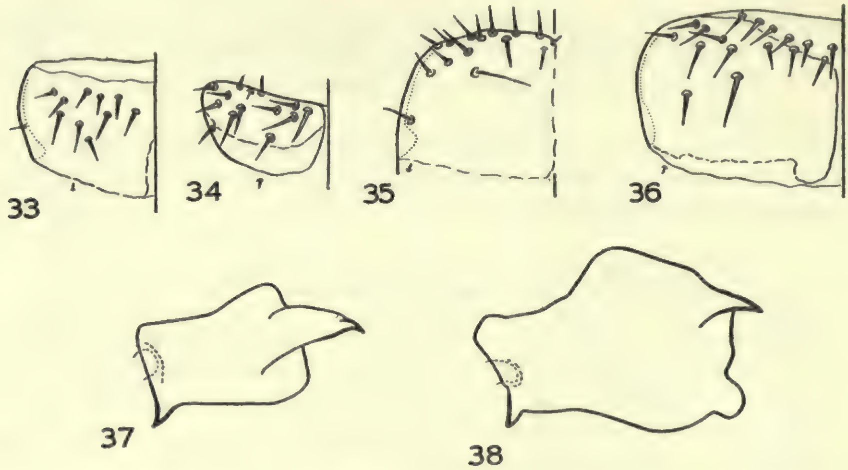
A *nomen novum* for *Pediculus tinnunculi* Linn. but with a description which may perhaps be independent and which forces us to erect a neotype.

Neotype of *Laemobothrion hasticeps* (Olfers) the neotype specimen of *Laemobothrion tinnunculi* (Linn.) designated by Clay & Hopkins, 1950 : 230.

Nirmus adustus (p. 87)

A blanket-name to cover *Pediculus corvi* Linn., *Ricinus cornicis* de Geer, and (judging solely from the list of hosts) *Pediculus haematopus* Scopoli. The description seems to apply chiefly to *Philopterus corvi* (Linn.), so we restrict it in that sense.

Neotype of *Philopterus adustus* (Olfers) the neotype specimen of *Philopterus corvi* (Linn.) designated by Clay & Hopkins, 1950 : 231.

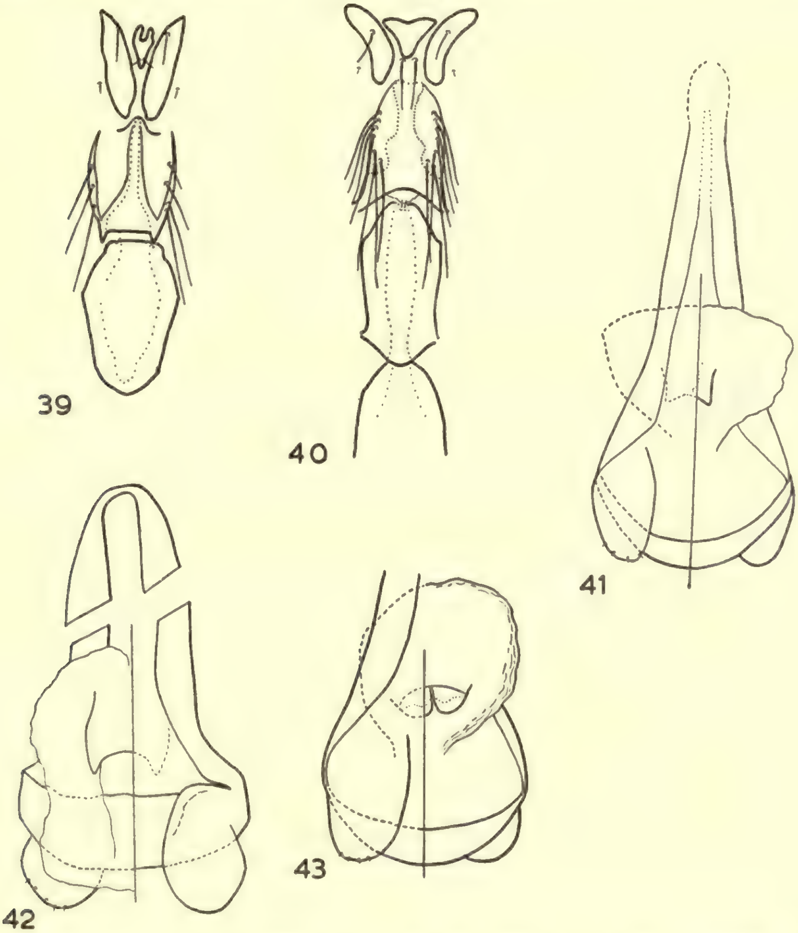


Figs. 33–38. *Ricinus*. 33–36. Right half of male labium, drawn to same scale. 33. *R. dolichocephalus*. 34. *R. rubeculae*. 35. *R. fringillae*. 36. *R. elongatus*. 37–38. Mandible, female. 37. *R. fringillae*. 38. *R. elongatus*.

Nirmus elongatus (p. 88)

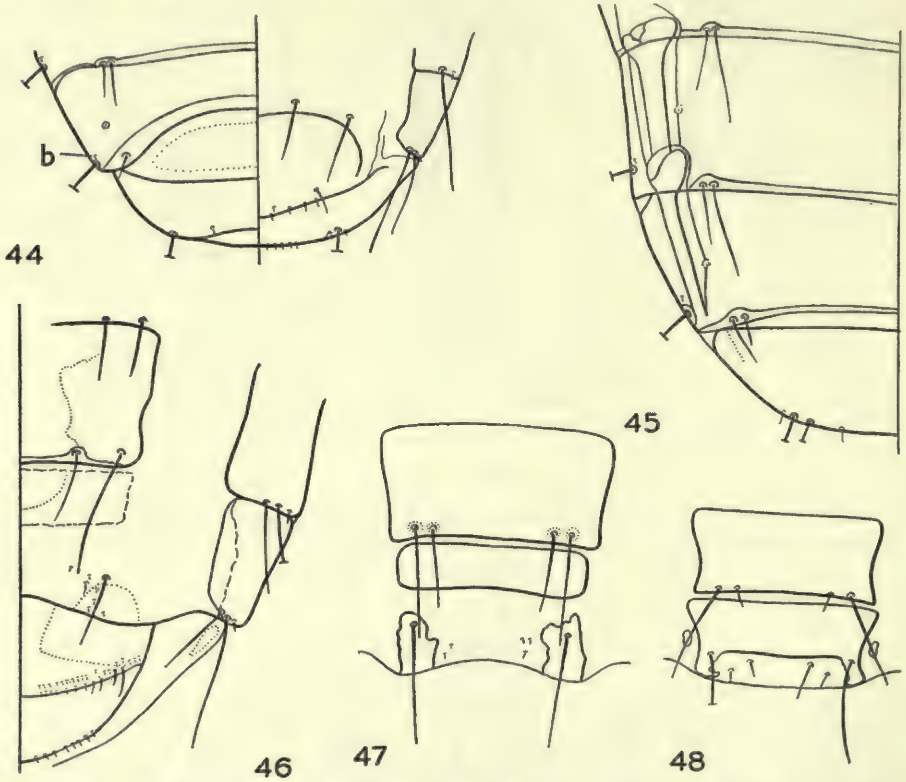
This is the first really new description we find in Olfers' work. The host is *Turdus viscivorus* and the description (particularly the apparent absence of antennae and the presence of a lateral fissure placed posteriorly on the head) leaves no doubt that the insect was a *Ricinus* s. st. This appears to be a rare species on the type host, the only specimens we have seen are those collected by Dr. F. Balát to whom we are much indebted for the presentation of the neotype. Only female specimens of *Ricinus* from *Turdus pilaris*, the type host of *R. mystax* (Burmeister), have been seen ; these are not separable from *R. elongatus* and it is probable that *mystax* will prove to be a synonym of the former name. *R. ernstlangi* Eichler, 1941 was published as an uncritical *nomen novum* for a specimen from *Turdus merula* inadequately described by Piaget ; this specimen is no longer in either the British Museum or Leyden parts of the Piaget Collection. However, males and females from *Turdus merula* do not appear to be separable from *elongatus*: and *ernstlangi* can be considered as a synonym of this latter name.

As already shown in previous papers in this series (Clay & Hopkins, 1951, 1954) the species of *Ricinus* are most easily separated by the characters of the mandibles, not only by the tips, but by the outline of the whole structure and for this reason a figure is included here of the whole mandible of *R. fringillae* (Text-fig. 37) as this was not shown in Clay & Hopkins, 1954. At that time we had no male of this latter species, but through the kindness of Dr. Balát a male has been seen and a figure of the genitalia can now be given (Text-fig. 41). Additional figures of the previously described species are given for comparison with *elongatus*, including one of the bar joining the ends of the basal apodeme in *R. dolichocephalus* (Text-fig. 43) as the pigmentation of the neotype specimen from which this was drawn gives the appearance of the bar being more pointed centrally than it should be. Tables I and II show the characters which are of diagnostic value in separating the four species of *Ricinus* under discussion.



FIGS. 39–43. *Ricinus.* 39–40. Gular and thoracic plates and setae, female. 39. *R. dolichocephalus.* 40. *R. elongatus.* 41–43. Male genitalia. 41. *R. fringillae.* 42. *R. elongatus.* 43. *R. dolichocephalus.*

Male of *R. elongatus*. General characters as shown in Pl. I, fig. 5; chaetotaxy of head and thorax, mandible, labium and gular and thoracic plates as in Text-figs. 32, 38, 36, 40. Owing to varying amounts of distortion during the preparation of specimens the shape of the labium is variable, but the chaetotaxy appears to be constant for each of the four species. As in all species of *Ricinus* examined the pterothorax is fused with the 1st abdominal segment; the four dorsal setae (Text-fig. 32, *c*.) on this segment are assumed to be pterothoracic and are not included in the account of the chaetotaxy of the abdomen (see below). Terminal segments of the abdomen and genitalia as in Text-figs. 44 and 42.



Figs. 44–48. *Ricinus*. 44–46. *R. elongatus*. Terminal segments of abdomen. 44 Male. 45. Female, dorsal. 46. Female, ventral. 47–48. Sclerites of female genital region. 47. *R. fringillae*. 48. *R. rubeculae*.

Female. General characters as shown in Pl. I, fig. 4; characters of the mandible, labium and gular and thoracic plates as in male; terminal segments of abdomen as in Text-figs. 45 and 46.

Chaetotaxy of the abdomen. Post-spiracular setae present on segments I–VIII, those on II–VIII with the usual two small posterior setae (see Clay, 1954: 717, fig. 1); anterior to each post-spiracular seta is another seta which on segment I is of medium length (Text-fig. 32, *b*), but may rarely be shorter and thinner on one side or duplicated on one side; these anterior setae on segments II–VIII are usually short (Text-fig. 44 b), but rarely may be long on one side of a segment. Tergocentral setae: I, 0; II–VIII, 2 + 2, rarely one or both may be missing on one side. Pleural setae as in Table II. Sternocentral setae[1] in the male: I, 1 + 1; II–VII, 2 + 2; VIII, 2 + 2 or 1 + 1; in the female: I, 1 + 1; II–VI, 2 + 2. Chaetotaxy of terminal segments of male and female abdomens shown in Text-figs. 44–46.

Measurements in mm.

	Male (2)		Female			
			Length		Breadth	
	Length	Breadth	Range	Mean	Range	Mean
Head	0·68–0·71	0·70–0·72	0·79–0·84(5)	0·80	0·77–0·81(5)	0·79
Prothorax	—	0·61–0·65	—	—	0·75–0·79(4)	0·77
Abdomen	—	1·08	—	—	1·39–1·44(4)	1·41
Total	3·41–3·52	—	4·58–4·69(4)	4·62	—	—
Genitalia	0·50–0·51	—	—	—	—	—

Neotype male (Pl. I, fig. 5) and neallotype female (Pl. I, fig. 4), of *Ricinus elongatus* (Olfers) in the British Museum (Natural History), slide No. 649, from *Turdus viscivorus* Linn. from Hodonin, Czechoslovakia, collected (16.iv.1953) and presented by Dr. František Balát. *Neoparatypes*: 1 ♂ and 5 ♀ from *Turdus viscivorus* Czechoslovakia and Hungary.

TABLE I.—*Diagnostic Characters of Species of* Ricinus

	dolichocephalus	*rubeculae*	*fringillae*	*elongatus*
Head shape and setae	Fig. 29	Fig. 30	Fig. 31	Fig. 32
Length of seta a. and usual no. of associated sensilli	Short 2 Fig. 29 *a*	Short 2	Long 2	Long 1
Mandibles	Pt. 2, Fig. 13	Pt. 3, Fig. 4	Fig. 37	Fig. 38
Labium	Fig. 33	Fig. 34	Fig. 35	Fig. 36
Gular and thoracic plates and setae	Fig. 39	Pt. 3, Fig. 1	Pt. 3, Fig. 15	Fig. 40
Shape of prothorax	Fig. 29	Fig. 30	Fig. 31	Fig. 32
Length of seta b.* anterior to 1st post-spiracular seta	Short	Short	Medium	Medium Fig. 32*b*
Pleural setae		*See Table II*		
Setae round anal opening, ♀	Pt. 2, Fig. 15	Pt. 3, Fig. 3	Pt. 3, Fig. 16	Fig. 46
Sclerites of ♀ genital region	Not apparent	Fig. 48	Fig. 47	Fig. 46
♂ genitalia	Pt. 2, Fig. 14 and Fig. 43	Pt. 3, Fig. 2	Fig. 41	Fig. 42

* Length occasionally different on one side of segment.

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[1] It is possible that these setae are not assigned to the correct segments.

TABLE II.—*Pleural Setae in Males of Species of* Ricinus*

	dolichocephalus	*rubeculae*	*fringillae*	*elongatus*
I†	2 sp.	0	0	1 sp.
II.	3 sp.	2–3 sp.	3 sp.	2 sp.
III	3 sp.	2–3 sp.	3 sp.	2–3 sp.
IV–VI	1 sp., 1 medium, 1 long	1–2 sp., 1 long	1 sp., 2 long	1 sp. 1–2 long,
VII	1 short, 1 medium, 1 long	2 short, 1 long	1 short, 2 long	As IV
VIII	As VII	As VII	As VII	As IV

* Setae of one side only given ; there is some individual variation, usually on one side of the segment only.

† Posterior to 1st post-spiracular seta.

sp. = spine-like seta.

Nirmus crassicornis (p. 89)

This only needs mention because Harrison (1916 : 13) attributes the name to Olfers and considers the species different from *crassicornis* Scopoli. It is only different inasmuch as it is a mixture of *Anaticola crassicornis* (Scopoli) and *A. anseris* (Linn.), and Olfers himself correctly credits the name to Scopoli.

Nirmus fornicatus (p. 89)

Another blanket-name, covering *Pediculus sternae* Linn., the left-hand figure of Redi's plate 9, and *Ricinus lari* de Geer excluding the figure. The species is stated to occur on " laris et sternis " and the description is unmistakably that of a *Saemundssonia.* The name has already been restricted (Clay, 1949 : 10) by the selection of a neotype specimen from *Sterna h. hirundo* agreeing with the neotype of *Saemundssonia sternae* (Linn.).

Nirmus tetragonocephalus (p. 90)

A new name for *Pediculus pavonis* Linn., but with an independent description which clearly refers to the same insect. The host is *Pavo cristatus.*

Neotype of *Goniodes tetragonocephalus* (Olfers) the male neotype specimen of *Goniodes pavonis* (Linn.) designated by Clay (1940, *Proc. zool. Soc. Lond.* B, 110 : 7).

Nirmus trigonocephalus (p. 90)

A new name for *Pediculus gallinae* Linn., but with an apparently independent description ; the host is *Phasianus gallus.* The references include de Geer, pl. 4, fig. 15, of which Olfers remarks that it is a very bad figure. This is hardly surprising because de Geer's figure represents a *Goniocotes* whereas Olfers' description is that of a *Menopon.*

Neotype of *Menopon trigonocephalus* (Olfers), the male neotype specimen of *Menopon gallinae* (Linn.) designated by Clay & Hopkins, 1950 : 262.

Nirmus filiformis (p. 90)

Eichler (1942 : 279) has erected a neotype for *Columbicola filiformis* (Olfers) from *Columba o. oenas.*

Nirmus globifer (p. 91)

This is primarily a *nomen novum* for *Pediculus citrinellae* Schrank and *Pediculus emberizae* Fabricius but also includes *Pediculus passeris* Fourcroy because Geoffroy's figure of the latter is quoted in the references. The host-list includes *Emberiza citrinella, Parus major, Fringilla linaria* and *F. domestica.* In order to prevent any future confusion we restrict the name in such a way as to make it a synonym of *citrinellae* Schrank.

Neotype of *Philopterus globifer* (Olfers) the male neotype specimen of *Philopterus citrinellae* (Schrank) designated by Clay & Hopkins, 1954 : 229.

Nirmus pterocephalus (p. 91)

Another blanket-name, covering *Pediculus fringillae* de Geer, *Pediculus fringillae* Scopoli and *P. rubeculae* Schrank. The first and third of these species belong to *Ricinus s. str.*, as also does Olfers' description, but the species described by de Geer and by Schrank are not the same and there is nothing in Olfers' description to suggest which he had before him. Nor does his host-record help, for it is " Hab. in motacilla rubecula ; fringillis ; Emberizis."

Nirmus pterocephalus has usually been held to apply chiefly to *Ricinus rubeculae* (Schrank) and we establish this assumption on a firm basis by our selection of the neotype.

Neotype of *Ricinus pterocephalus* (Olfers) the male neotype specimen of *Ricinus rubeculae* (Schrank) designated by Clay & Hopkins, 1954 : 224.

Nirmus truncatus (p. 91)

This is an independent description and the host is *Hirundo* (= *Apus*) *apus.* Harrison (1916 : 19) refers the species to *Dennyus* and we are in full agreement with this attribution. Olfers suggests that *Pediculus chelidoneus* Schrank may be the male of *truncatus*, but this is definitely not the case.

As the details of the prothoracic plate are not clear in the figure of *hirundinis* given in Hopkins & Clay, 1950, fig. 60, an enlarged figure is included here. The number of long setae on this plate is not diagnostic as in both sexes variation in number from 3–7 has been found (Text-figs. 53–54).

Neotype of *Dennyus truncatus* (Olfers) the male neotype specimen of *Dennyus hirundinis* (Linn.) designated by Clay & Hopkins, 1950 : 268.

NITZSCH, 1818

(Die Familien und Gattungen der Thierinsekten. *Germar's Mag. Ent.* 3, pp. 261–318).

It has usually been assumed that all the specific names in this work (the only paper on Mallophaga published by Nitzsch himself) are *nomina nuda*, but this is incorrect ;

none of them is accompanied by a description, but many are *nomina nova*, mostly totally unnecessary, for previously-described species. The bearing of this point on the selection by various authors of type species for Nitzsch's genera has been discussed by one of us (Hopkins, 1946) and his application to the International Commission on Zoological Nomenclature to validate certain invalid but universally accepted selections was finally approved in Opinion 342 (1955, *Opin. Decl. int. Comm. zool. Nomencl.* 10, pp. 271–298). In these circumstances we can omit discussion of the genera. Most of the species have already been dealt with, but on account of the importance of this work, which has often been treated as if it were the first contribution to our knowledge of the Mallophaga, we list all specific names which are contained in the paper and are not *nomina nuda*.

Philopterus (Docophorus) ocellatus (p. 290)

This name is often attributed to Nitzsch, but Nitzsch himself credits it to Scopoli, whose species has already been dealt with by us (Clay & Hopkins, 1951 : 8).

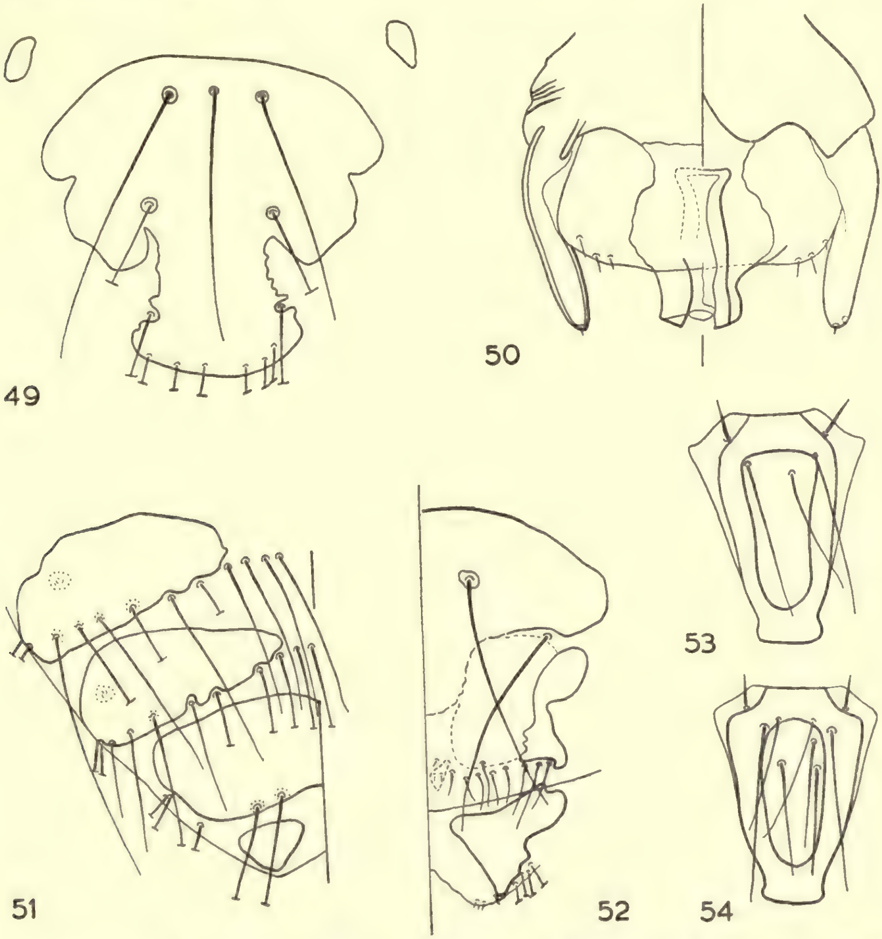
Philopterus (Docophorus) atratus (p. 290)

Besides a reference to Scopoli similar to that under *ocellatus* there is one to " Pulex Corvi, Redi Experim. t. xvi "; the host is given as *Corvus frugilegus*. We have already dealt (Clay & Hopkins, 1950 : 231) with Linné's erroneous reference to the same plate and the confusion it has caused. Nitzsch's *atratus* is a perfectly valid renaming of Redi's species which previously had no valid name. The type of *atratus* was one of Redi's lost specimens so that we here erect a neotype.

Redi's figure is more like the species from *Corvus frugilegus* than those from other species of *Corvus*. *P. atratus* is distinguished by the anterior plate being elongated with a strongly pigmented posterior point and central unpigmented area, by the abdomen not having relatively large unpigmented areas round the spiracles, by the fused tergal plate of IX–X of the female being uniformly pigmented, by the form of the sternal plates of the male and the sclerites of the female genital region, and by the male genitalia.

MALE AND FEMALE. General characters as shown in Pl. V, figs. 3 and 5. Prothorax with one long seta at each dorsal postero-lateral corner. Pterothorax with small sternal plate and two groups of ventral setae varying in number, the anterior one from 2–3 and the posterior from 3–5 ; one long and one spine-like seta on each postero-lateral margin and a number of long setae along the postero-dorsal margin varying from 22–31. In both sexes the tergal plates of II–VIII and XI are separated medially ; in the male the fused plate of IX–X may be either separated or joined, in the female it is always joined (Text-fig. 51). Sterna of II–VI with small discrete plates each side ; sternites of VII and posterior segments form the genital plate in both sexes (Text-figs. 49 and 52). In one male the tergal plate of II is deformed on one side and fused to the pterothorax. Genitalia of male as in Pl. V, fig. 4, and Text-fig. 50.

Chaetotaxy of the abdomen. The tergal setae form a continuous line across the segment, but the outer one on each side can be considered as the post-spiracular seta as on segments II–V it is associated with a sensillus (Clay, 1954) ; in the counts given below the post-spiracular setae are included with the rest of the tergal setae. The pleural setae as given here include all the lateral setae and those on the ventral surface lateral to the sternal plates. The first apparent segment (referred to as II) has two long dorsal setae anterior to the row of marginal setae. The following variation was found in the setae of five males and five females : Males, tergal setae : II, 18–26 ; III, 18–27 ; IV, 25–32 ; V, 24–30 ; VI, 22–28 ; VII, 17–24 ; VIII, 13–16 ; X, 2 + 2 (one specimen with 2 + 1) ; terminal margin of last segment,



Figs. 49–54. 49–52. *Philopterus atratus* Nitzsch. 49. Male genital plate. 50. Distal part of male genitalia, mesosome has 6 lateral setae each side, 3 ventral and 3 dorsal. 51–52. Terminal segments of female abdomen. 51. Dorsal. 52. Ventral. 53–54. Prosternal plate and chaetotaxy of two males of *Dennyus hirundinis* (Linn.).

9–14. Sternal setae: II, 12–14; III, 12–15; IV, 11–14; V, 11–14; VI, 9–12; VII, 3; VIII, 1 + 1; XI, 1 + 1. Pleural setae (one side only given): II, 0; III, 1; IV–VI, 5–8; VII, 3–5; VIII, 3–4; IX, 1–2. Females, tergal setae: II, 21–24; III, 25–31; IV, 24–30; V, 25–32; VI, 24–28; VII, 20–24 (1 specimen with 16 due to a natural gap in the line of setae on one side); VIII, 14–18; X, 2 + 2. Sternal setae: II, 11–14; III, 12–14; IV, 10–16: V, 10–13; VI, 9–12. Pleural setae: II, 0; III, 1 (1 specimen with 2 on one side); IV–V, 6–8; VI, 5–7; VII, 3–4; VIII, 4; IX, 2; X, 1; XI, 3–6 long setae and 1 spine-like seta.

Measurements (of 10 *males and* 10 *females) in mm.*

	Length		Breadth	
	Range	Mean	Range	Mean
Male				
Head	0·68–0·76	0·73	0·63–0·70	0·66
Prothorax	—	—	0·37–0·41	0·39
Pterothorax	—	—	0·54–0·58	0·55
Abdomen	0·90–1·16	0·99	0·85–1·00	0·91
Total	1·98–2·32	2·09	—	—
Genitalia	0·48(1)	—	—	—
Females				
Head	0·75–0·84	0·79	0·68–0·75	0·71
Prothorax	—	—	0·38–0·44	0·41
Pterothorax	—	—	0·55–0·62	0·59
Abdomen	0·97–1·29	1·18	0·88–1·06	0·96
Total	2·08–2·56	2·34	—	—
Genitalia	—	—	—	—

Neotype male (Pl. V, fig. 3) and *neallotype* female (Pl. V, fig. 5) of *Philopterus atratus* Nitzsch, 1818 in the British Museum (Natural History) Collection (slide No. 652, Brit. Mus. 1958–149) from *Corvus f. frugilegus* Linn. from Badgeworth, Gloucestershire, 23.vi.1957. *Neoparatypes*: 97 ♂, 113 ♀ from the same host form from various localities in the British Isles, Italy and Hungary.

Philopterus (Docophorus) communis (p. 290)

A *nomen novum* for half a dozen names, most of them valid, including *Pediculus citrinellae* Schrank, to which we have already restricted *communis* Nitzsch by selecting as neotype of this nominal species the neotype of *Philopterus citrinellae* (Schrank) (see Clay & Hopkins, 1954: 228).

The host-record is " passerum Linn. fere omnium ", and it is specially to be noted that Giebel's apparent restriction of *communis* to the form found on *Fringilla linaria* (Giebel, 1874: 85, pl. 11, fig. 13) cannot be accepted because this bird is not among the hosts of the previously-described species mentioned under *communis* Nitzsch 1818 and to which it owes all its validity.

Philopterus (Docophorus) leontodon (p. 290)

An entirely unnecessary *nomen novum* for " Schrank Beitr. tab. V. f. 11 ", i.e. *Sturnidoecus sturni* (Schrank). The neotypes for Schrank's species (Clay & Hopkins, 1954 : 232) are automatically neotypes for *Sturnidoecus leontodon* (Nitzsch).

Philopterus (Docophorus) platyrhynchus (p. 290)

An unwanted *nomen novum* for *Pediculus haematopus* Scopoli. The host is *Falco palumbarius*, the same host to which Scopoli himself restricted the name, and our neotype (Clay & Hopkins, 1951 : 5) of Scopoli's species is also the neotype of *Craspedorrhynchus platyrhynchus* (Nitzsch).

Philopterus (Docophorus) excisus (p. 290)

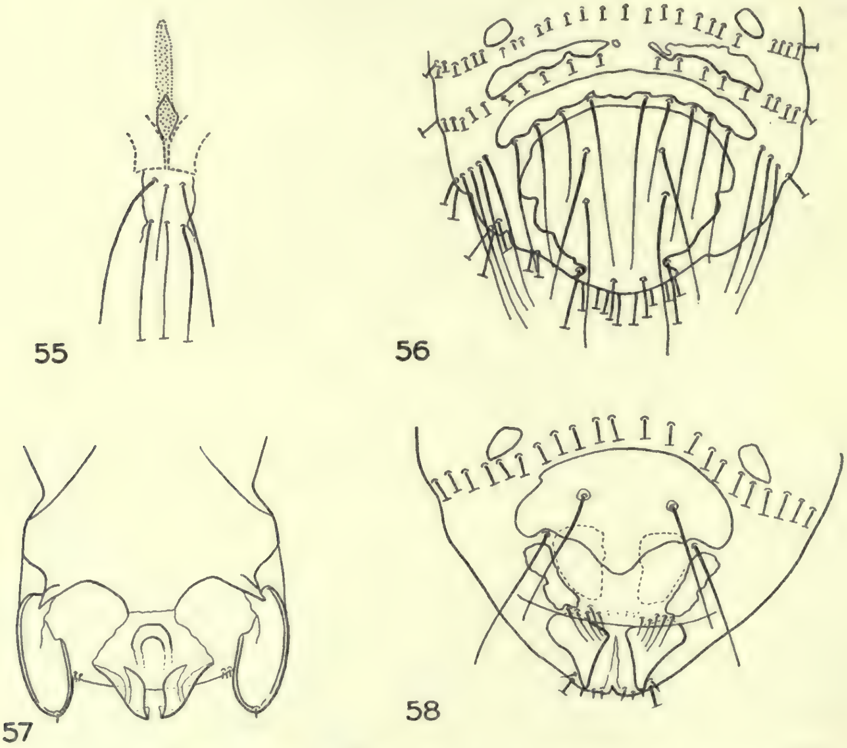
A *nomen novum* for *Pediculus hirundinis* Schrank, 1803, and valid, *hirundinis* Schrank being preoccupied by *Pediculus hirundinis* Linn., 1763. But Nitzsch's host-record " Hirundinis rip. et urbic." cannot be accepted because the host is of necessity that of Schrank's material, which is " Rauchschwalbe " (= *Delichon urbica*). We have already stated (p. 19) that Schrank's description indicates beyond doubt a *Philopterus* of the type which occurs on swallows.

Tandan (1955 : 421–425) has shown how the form from *Delichon urbica* differs from that (*P. excisus microsomaticus* Tandan) from *Hirundo rustica* and given figures of the head and anterior dorsal plate and measurements for the breadth of head which will not be repeated here.

MALE. General characters as shown in Pl. III, fig. 2 and with characters of head and anterior plate as shown in Tandan, 1955, figs. 8*b* and 9*b*. Postantennal area of the head with minute setae, irregular in number and position. Prothorax with pronotum divided in the mid-line ; one elongated seta each side of posterior margin ; prosternal plate as shown in Text-fig. 55. Pterothorax with pteronotum partially divided into two ; sternal plate not heavily sclerotized and usually with 2 meso- and 3 metasternal setae, but there may be 3 meso- and 4 metasternal ; postero-lateral corner with one medium and one spine-like seta each side and a row of long setae of varying length and thickness along the posterior dorsal margin varying in number from 16–20. Abdomen with tergal plates II–VIII and XI divided medially ; the fused plate of IX–X may or may not be divided. Sterna of II–IV with small discrete plates each side, V with a complete or nearly complete transverse sclerite, VI with a complete transverse sclerite and sternites of VII to the end of the abdomen forming the genital plate (Text-fig. 56). Male genitalia as shown in Text-fig. 57.

FEMALE. Head as shown in Tandan, 1955, fig. 11*b*. Thorax as in male with number of setae on posterior margin varying from 17–22. Abdomen with tergal plates II–VIII and XI divided medially, the fused plate on IX–X continuous across the segment. Sterna of II–VI with small discrete plates each side, sternites of the remaining segments as shown in Text-fig. 58.

Chaetotaxy of abdomen. In both sexes the tergal setae of II–VIII form a continuous row of long setae across the segment, the outer ones of which are the post-spiracular setae as on segments II–V; these have a contiguous sensillus; in the counts given below the post-spiracular setae are included in the counts of the rest of the tergal setae. Segment II has two long anterior setae in addition to the row of submarginal setae. There is individual variation of both the tergal and sternal setae; tergal setae: II, 16; III, 17; IV, 20; V, 18; VI, 16; VII, 14; VIII, 10; IX, 1 + 1. On some segments the sternal setae are continuous with the pleural setae and the counts of the latter include all those lateral to the sternites. Sternal setae: II, 12; III, 14; IV, 16; V–VI, 10. In the females examined the range is rather greater: II, 10–15; III, 13–20; IV, 14–19; V–VI, 10–16. Pleural setae (one side only): II, 0; III, 1; IV–V, 6–8; VI, 5–7; VII, 3–4; VIII, 2; IX, 1. Setae of last segments as in Text-figs. 56 and 58.



Figs. 55–58. *Philopterus excisus* Nitzsch. 55. Prosternal plate and meso-metasternal setae of male. 56. Posterior segments of male abdomen, ventral. 57. Distal part of male genitalia, mesosome has 3 lateral setae each side, 2 ventral and 1 dorsal. 58. Genital region of female.

Measurements (*of* 10 *males and* 10 *females*) *in mm.*

	Length		Breadth	
	Range	Mean	Range	Mean
	Male			
Head	0·45–0·49*	0·47	0·40–0·43	0·42
Prothorax	—	—	0·25–0·28	0·26
Pterothorax	—	—	0·36–0·40	0·38
Abdomen	0·57–0·68	0·61	0·57–0·61	0·60
Total	1·22–1·44	1·35	—	—
Genitalia	0·25(1)	—	—	—
	Female			
Head	0·49–0·55*	0·51	0·43–0·48	0·45
Prothorax	—	—	0·26–0·29	0·28
Pterothorax	—	—	0·39–0·47	0·42
Abdomen	0·74–0·90	0·81	0·67–0·74	0·69
Total	1·57–1·70	1·63	—	—
Genitalia	—	—	—	—

* Taken from the highest part of hyaline margin to middle of occipital margin.

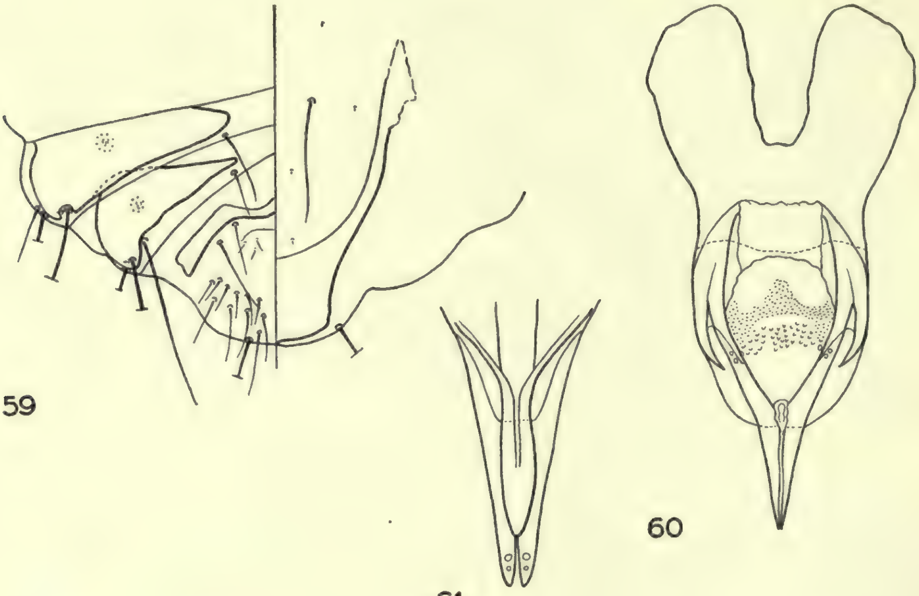
Neotype male (Pl. III, fig. 2) of *Philopterus excisus* Nitzsch, 1818 in the British Museum (Natural History) Collection (slide No. 651) from *Delichon urbica* (Linn.) from Glen Clova, Scotland, collected by G. B. Corbet, 13.vi.1956. Neoparatypes: 27 ♂, 33 ♀ from the same host form from the British Isles, France, Sweden and Morocco.

Philopterus (Docophorus) icterodes (p. 290)

A valid *nomen novum* for " Degeer vii. t. 4. f. 14 ", since de Geer's name *Ricinus mergi-serrati* has been restricted (Clay & Hopkins, 1954 : 240) to the *Anaticola* shown on fig. 13 of the same plate. De Geer's fig. 14 represents an *Anatoecus*. Nitzsch's host-record is " Mergorum et Anat.", for which must be substituted *Mergus serrator*, since the host is of necessity that from which de Geer's material came. The fact that Nitzsch apparently had no material from this host (see Giebel, 1874 : 115) is completely irrelevant.

As previously shown under *Anatoecus dentatus* (in Clay & Hopkins, 1951 : 16) all the European ducks examined have two species (if this does not prove to be a case of dimorphism) of *Anatoecus*, one with the " effractor " in the male genitalia, the other without. As it is impossible to tell from the earlier descriptions to which group a name refers, it is necessary to fix the names arbitrarily for the two types. This has been done by designating as neotype for *A. dentatus* (Scopoli) a specimen with the " effractor " (see Clay & Hopkins, 1951 : 17 and 1958 : 268), and here a male without the " effractor " will be designated as neotype of *icterodes*; each neotype is from the type host of the nominal species. As in the case of *dentatus* no female neallotype nor female neoparatypes will be designated as a revision of *Anatoecus* is required for the certain assignment of the females to the different species of males.

Male. General characters as shown in Pl. II, fig. 3. General characters and dorsal chaetotaxy of head as in Cummings' figure of *icterodes* (not from type host) (1916 : 654, fig. 7B). Prothorax with 1 spine-like and 1 long seta at each postero-lateral corner. Pterothorax with one lateral spine-like seta each side and 6 + 6 long setae along the dorso-posterior margin ; and 2 pairs of central ventral setae. Tergum of pterothorax divided longitudinally into two. Abdominal tergites of II–VIII divided medially ; fused tergite of IX–X greatly narrowed and continuous across the segment. Except for the genital plate (Text-fig. 59) the sternum has no apparent plates but has horizontal lines of sculpture ; anteriorly the genital plate shows some variation. Pleurites II–VII each with a backwardly directed ventral point, some of which overlap the next segment. Genitalia as shown in Text-figs. 60–61.



Figs. 59–61. *Anatoecus icterodes* (Nitzsch), male. 59. Terminal segments of abdomen. 60. Genitalia. 61. Distal part of genitalia, enlarged.

Chaetotaxy of the abdomen. Tergal setae : II, 1 long and 1 medium central setae each side ; III–V, 1 lateral spine-like seta each side (probably the post-spiracular setae but no sensilli can be seen in the available material) and 1 + 1 long central setae ; VI–VII, 1 long lateral seta each side with adjacent spine-like seta, 1 + 1 long central setae ; VIII, 1 long lateral seta with adjacent spine-like seta and 1 long seta each side, 1 + 1 medium central setae ; X, 2 + 2 or 1 + 2. Pleural setae (only one side given) : II–III, 0 ; IV–V, 2 spine-like setae ; VI–VIII, 1 long, 1 medium. Sternal setae : II–V, 1 + 1 minute spine-like setae. For chaetotaxy of terminal segments see Text-fig. 59. Most of the above characters are also found in the *dentatus* group and cannot be used to distinguish the two species ; these are apparently separable only on the characters of the male genitalia.

Measurements in mm.

Male

	Length	Breadth
Head	0·43	0·40
Prothorax	—	0·27
Pterothorax	—	0·35
Abdomen	0·59	0·61
Total	1·29	—
Genitalia	0·40	—

Measurements in mm. of heads of 10 *specimens*

Individual No.	1	2	3	4	5	6	7	8	9
Total length in midline	0·43	0·41	0·44	0·43	0·43	0·43	0·45	0·43	0·46
Length of hyaline margin	0·13	0·12	0·14	0·13	0·13	0·12	0·15	0·13	0·16
Breadth at temples	0·40	0·39	0·41	0·41	0·40	0·40	0·41	0·40	0·41
Breadth at base of hyaline margin	0·22	0·21	0·23	0·23	0·23	0·22	0·23	0·23	0·23

Neotype male (Pl. II, fig. 3) of *Anatoecus icterodes* (Nitzsch, 1818) in the British Museum (Natural History) Collection (slide No. 20221*a*, Meinertzhagen Collection) from *Mergus serrator* Linn., from South Uist, British Isles. *Neoparatypes* : 9 ♂ from the same host species from S. Uist and Hampshire, British Isles.

Philopterus (Nirmus) attenuatus (p. 291)

There is a reference to " Ped. Ortygometrae ? Schrank Ins. Austr.", but the presence of the query renders *attenuatus* still a *nomen nudum*. The name was first published with a description by Burmeister, 1838 but is a synonym of *Rallicola ortygometrae* (Schrank) (see Clay & Hopkins, 1954 : 257).

Philopterus (Nirmus) minutus (p. 291)

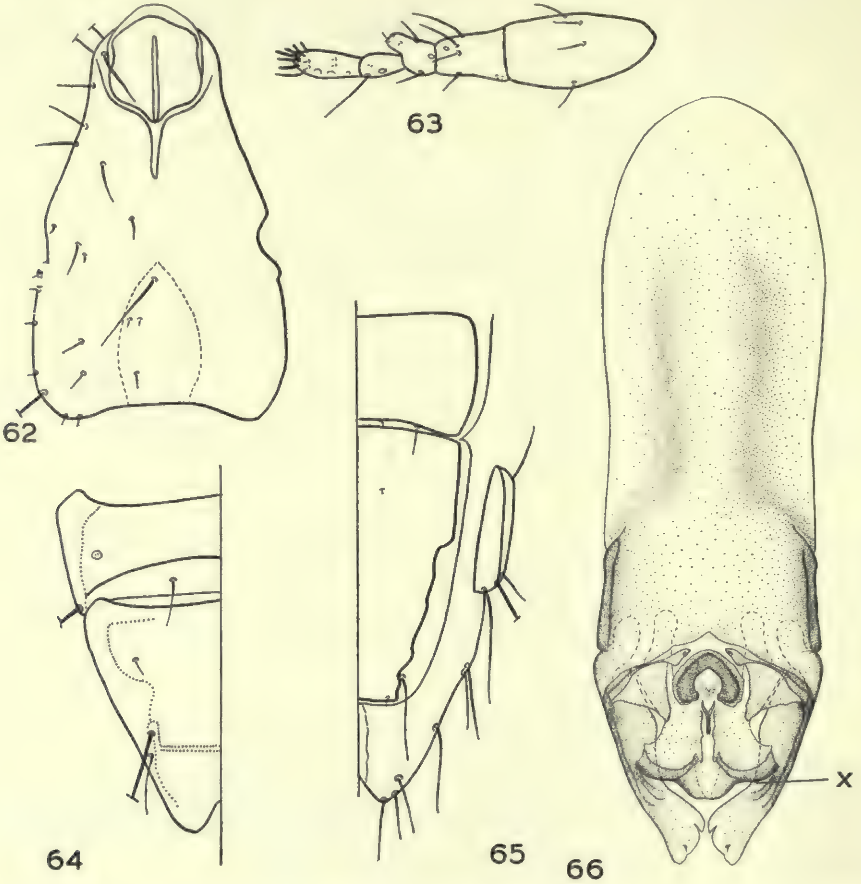
The case of this name has already been dealt with by one of us (Hopkins, 1940 : 423) who regards it as a *nomen nudum*. The name is valid from 1866, when Giebel published Nitzsch's description of *Rallicola minutus* (Nitzsch).

Philopterus (Lipeurus) versicolor (p. 292)

An unwanted *nomen novum* for *Pediculus ciconiae* Linn., so our neotype (1950 : 253) for the latter is also the neotype of *Ardeicola versicolor* (Nitzsch).

Philopterus (Lipeurus) luridus (p. 292)

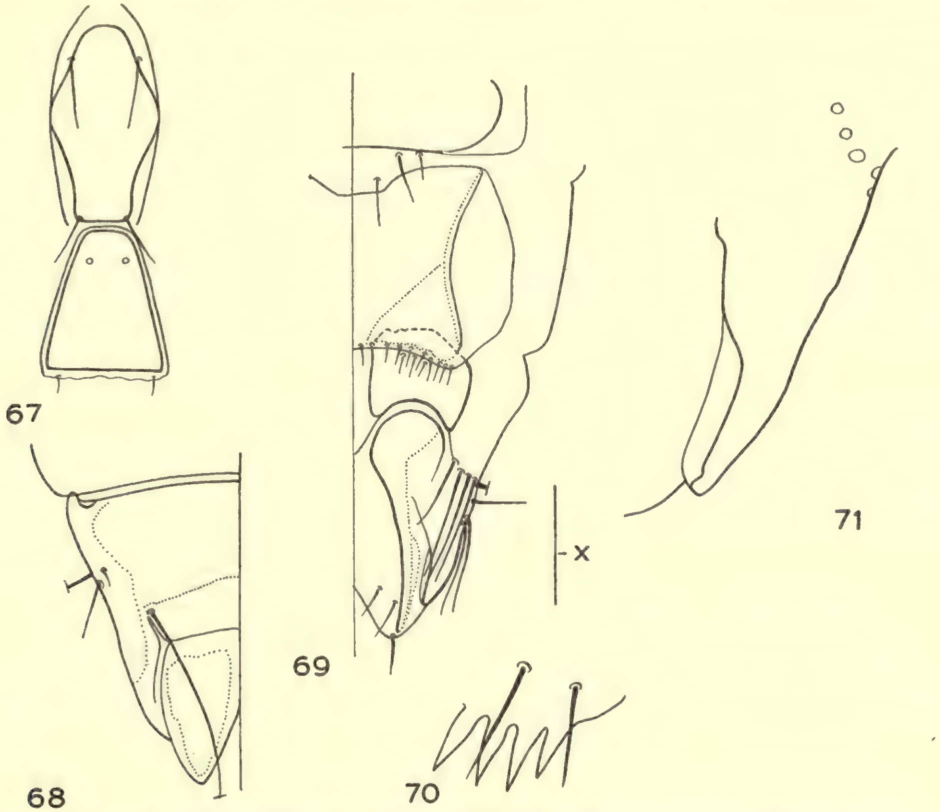
A *nomen novum* for " Redi Experiment. tab. IV. Fig. 2 ", and valid because the insect depicted (a *Fulicoffula*) had not previously been named. Nitzsch's host-record is " Fulicae chloropod.", but the host must be that of Redi's material, which is *Fulica a. atra.*



Figs. 62–66. *Fulicoffula lurida* (Nitzsch), male. 62. Outline of head and dorsal chaetotaxy (one side only). 63. Antenna. 64–65. Terminal segments of abdomen. 64. Dorsal 65. Ventral. 66. Genitalia (R. S. Pitcher del.).

Male. General characters as shown in Pl. VI, fig. 1. Antenna as shown in Text-fig. 63, and anterior dorsal plate and dorsal chaetotaxy as in Text-fig. 62 ; there are usually two long setae set close together in the centre of the post-antennal region, but in the neotype there is only one. Prothorax dorsally with one short seta on each postero-lateral corner and two longer ones on the posterior margin ; 2 minute setae on the dorsal surface just anterior to the mid line. Pterothorax with

2 minute setae on the anterior dorsal surface ; posteriorly there is a lateral seta of medium length each side, a spine-like seta on each postero-lateral corner and submarginally on the lateral end of the posterior margin each side a seta of medium length followed by a group of 3 long stout setae. Tergum of pterothorax posteriorly partly divided along the middle line ; meso-metasternal plate and chaetotaxy as shown in Text-fig. 67. Abdomen with tergal plate of II (fused I and II) produced anteriorly into the pterothorax as a rounded projection ; tergal plates II–X entire across the segments. Segments IX–XI fused, but there is a sign of a division between the tergites of X and XI (Text-fig. 64). Pleurites narrow with well developed re-entrant heads on segments III–V. Sternite II as in Text-fig. 67 ; II–VII median quadrilateral plates, those of VIII and posteriorly to the genital opening form the genital plate (Text-fig. 65). Genitalia as shown in Text-fig. 66, structure X has a toothed edge not apparent in the figure.



Figs. 67–71. *Fulicoffula lurida*. 67. Meso-metasternal plate and first apparent abdominal sternum, male. 68–69. Terminal segment of female abdomen. 68. Dorsal. 69. Ventral. 70. Edge of vulva enlarged. 71. Region x of Fig. 69 enlarged.

Female. General characters as shown in Pl. VI, fig. 2. Antennae simple. Dorsal anterior plate as in male; the two long setae found on the dorsal surface of the centre of the post-antennal area of the male are absent and all the dorsal setae (omitting the marginal and sub-marginal) with the exception of the one opposite the base of the antenna are minute or shorter than in the male. Thorax and tergite of II as in male but the two setae on the dorsal posterior margin of the prothorax are shorter. Tergal plates II–X entire across the segment but those on III–V have a thinner area centrally giving the impression in some specimens that the plates are divided. The postero-lateral corners of segment X are prolonged posteriorly and the distally free ends partly enclose segment XI (Text-fig. 69); part of this projection is hyaline (Text-fig. 71) and may be bent back or non-apparent giving it a pointed appearance. Pleurites and sternites II–VII as in male. Genital region as in Text-figs. 69–71.

CHAETOTAXY OF THE ABDOMEN. Male. There are no post-spiracular setae but on segments II–V there is what appears to be the lateral sensillus each side. Tergo-central setae: II, 2 anterior setae of medium length and 2 anterior sensilli[1] and 2 central submarginal setae of medium length; III–VIII, 2 central submarginal setae of medium length, not placed so closely to each other as those on segment II; IX–XI as in Text fig. 64. Pleural setae (one side only): II, 1 (short); III–IV, 2 (short on III, of medium length on IV); V, 1 long and 1 of medium length; VI–VII, 1 (long) and 2 (medium); VIII, 1 (long), 2 (medium), 1 short; IX, 2 medium, 1

Measurements in mm.

Male

	Length			Breadth	
		Range*	Mean	Range*	Mean
Head . . .	0·60	0·55–0·59†	0·57†	0·35–0·40	0·37
Prothorax . .	—	—	—	0·28	—
Pterothorax .	—	—	—	0·33	—
Abdomen . .	1.47	—	—	0·41	—
Total . . .	2·64	—	—	—	—
Genitalia . .	—	0·36–0·38	—	—	—

Female

	Length			Breadth	
		Range*	Mean	Range*	Mean
Head . . .	0·61	0·59–0·64†	0·61†	0·38–0·41	0·39
Prothorax . .	—	—	—	0·29	—
Pterothorax .	—	—	—	0·34	—
Abdomen . .	1·87	—	—	0·55	—
Total . .	3·03	—	—	—	—
Genitalia . .	—	—	—	—	—

* Range and mean for length and breadth of head of 10 specimens, of length of genitalia of 2 specimens; remaining measurements of one specimen.

† As hyaline margin may be distorted, length of head in range taken from anterior margin of anterior plate.

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[1] The circular clear areas in the tergites and sternites are here referred to as sensilli, although their true function is unknown.

short, this short seta may be found submarginally on the dorsal surface as in Text-fig. 64; X, 2 medium. Sternal setae II, 2 short submarginal and 2 sensilli near anterior margin of sternite (Text-fig. 67); III–VI, 2 short submarginal and two sensilli (which may be absent on VI) a short way anterior to the setae; VII–XI as in Text-fig. 65. In the female the tergal setae of II–X are as in the male except that the anterior setae of II are minute and the posterior setae are not placed so near each other. Pleural setae II–VIII and sternal setae II–VI as in male except the sternal setae of II–III are longer than in the male. Chaetotaxy of terminal segments as in Text-figs. 68–69.

Neotype male (Pl. VI, fig. 1) and *neallotype* female (Pl. VI, fig. 2) of *Fulicoffula lurida* (Nitzsch, 1818) in the Meinertzhagen Collection, British Museum (Natural History), slide No. 4939*a* from *Fulica a. atra* Linn. from Suffolk, England, August 1936. *Neoparatypes*: 62 ♂, 61 ♀ from the same host form from various localities in the British Isles, Morocco, Israel and Manipur (India).

Philopterus (Lipeurus) squalidus (p. 292)

A *nomen novum* for *Pediculus anatis* J. C. Fabricius. We have already (1954: 255) erected a neotype for Fabricius' species (which is a synonym of *A. crassicornis* (Scopoli)) and therefore for *Anaticola squalidus* (Nitzsch).

Philopterus (Lipeurus) temporalis (p. 292)

A *nomen novum* for " Ricinus Mergi, Degeer VII. tab. IV, Fig. 13 " and therefore an objective synonym of *Anaticola mergiserrati* (de Geer). Nitzsch's host-record is " Mergorum ", but the host is *Mergus serrator* and the neotype (see Clay & Hopkins, 1954: 240) of *Anaticola mergiserrati* (de Geer) is also the neotype of *Anaticola temporalis* (Nitzsch).

Philopterus (Lipeurus) jejunus (p. 292)

An unwanted *nomen novum* for *Pediculus anseris* Linn. as restricted by Fabricius, so our neotype (1950: 239) of Linné's species is also the neotype of *Anaticola jejunus* (Nitzsch).

Philopterus (Lipeurus) ebraeus (p. 293)

A *nomen novum* for the insect depicted on Redi's plate 3 and therefore an objective synonym of *Esthiopterum gruis* (Linn.), which is based on the same figure. Our neotype (1950: 250) of *E. gruis* (Linn.) is necessarily also the neotype of *Esthiopterum ebraeus* (Nitzsch).

Philopterus (Lipeurus) baculus (p. 293)

A *nomen novum* for " Redi Experim. t. II, Fig. super " (the figure on which *Columbicola columbae* (Linn.) is also based) and for " Ped. Columbae Panz. *Faun. Ins. Germ.* 51. 22 ". Lest Panzer's species (stated to be from *Columba oenas*, but this is only a quotation from Linné) should be different from that of Linné, we find it necessary to erect a neotype restricting the name to the species found on *Columba livia domestica*. Nitzsch's host-record is " Columbarum plur ", and it is to be particularly noted that *Columbicola baculus* (Burmeister, 1838) is from a different host (*Columba* (now *Streptopelia*) *turtur*) and is probably distinct, though the name is of course preoccupied.

Neotype of *Columbicola baculus* (Nitzsch) the male neotype specimen of *Columbicola columbae* (Linn.) designated by Clay & Hopkins, 1950. *Bull. Brit. Mus.* (*Nat. Hist.*) *Entom.*, 1 : 265.

Philopterus (Goniodes) falcicornis (p. 293)

A *nomen novum* for " Pedic. Pavonis, Linn. Fabr.", for " Redi Exper. tab. XIV. (mas) ", and for " Panzer Faun. Ins. Germ. 51.t.19 (fem.) ". Although these are all one species, we think it desirable to designate as neotype of *Goniodes falcicornis* (Nitzsch) the neotype erected for *G. pavonis* (Linn.) by Clay (1940 : 7).

Philopterus (Goniodes) stylifer (p. 294)

A *nomen novum* for *Pediculus meleagridis* Schrank 1781. The latter author (1781, p. 504, pl. 1, fig. 4) doubted if his species was the same as that of Linné, and although his doubts were quite groundless we feel compelled by them to erect a neotype.

Neotype of *Pediculus meleagridis* Schrank, 1781 and therefore of *Chelopistes stylifer* (Nitzsch, 1818) the male neotype specimen designated by Clay, 1941 : 124 for *Chelopistes meleagridis* (Linn., 1758).

Philopterus (Goniodes) hologaster (p. 294)

A *nomen novum* for *Ricinus gallinae* de Geer. The neotype we erected for the latter (1954 : 242) is automatically the neotype for *Goniocotes hologaster* (Nitzsch).

Trichodectes crassus (p. 295)

A *nomen novum* for *Pediculus melis* J. C. Fabricius, so the lectotype of the latter (p. 21) is also the lectotype of *T. crassus* Nitzsch.

Trichodectes latus (p. 296)

A *nomen novum* for *Ricinus canis* de Geer. Our neotype of the latter (1954 : 245) is automatically the neotype of *T. latus* also.

Trichodectes subrostratus (p. 296)

The only remarks under this species are the host-reference and " An huc Ped. canis, Oth. Fabric. Faun. Grönl. p. 215 ?" The name is a *nomen nudum* and Nitzsch's doubts were fully justified, for the subsequent description of Nitzsch's material showed that *Felicola subrostratus* (Burmeister, 1838) is not the same as Fabricius' species.

Trichodectes dubius (p. 296)

The neotype of *Pediculus mustelae* Schrank (p. 11) is automatically the neotype of *Trichodectes dubius* Nitzsch, which is a *nomen novum* for Schrank's species.

Trichodectes sphaerocephalus (p. 296)

A *nomen novum* for " Ped. Ovis, Linn. Fabric.", " Schrank Ins. Austr. p. 502, tab. I, Fig. 8–9." and " Redi exp. t. XXII. Fig. sinistra." *Pediculus ovis* Linn. is a *nomen nudum, P. ovis* Fabricius does not exist, and the species depicted by Schrank and Redi are the same. We have already shown (Clay & Hopkins, 1954 : 255) that our neotype of *Damalinia ovis* (Schrank) is automatically neotype of *Damalinia sphaerocephalus* (Nitzsch, 1818). Incidentally the name (if referring to a species distinct from *ovis*) would in any case be invalid as it had already been used by von Olfers.

Trichodectes scalaris (p. 296)

A *nomen novum* for *Pediculus bovis* Linn. Our neotype of the latter is automatically neotype of *Damalinia scalaris* (Nitzsch).

Trichodectes longicornis (p. 296)

A valid *nomen novum* for the species depicted by Redi on plate 23, lower figure, since *Pediculus cervi* Linn., which was partly based on the same plate, has long been restricted to a Hippoboscid (see Clay & Hopkins, 1950 : 227). Nitzsch's host-record is " Cervi Elaphi ", which can be accepted as a restriction of Redi's less-definite " Cervo ". The types, however, are not in Nitzsch's collection because they are Redi's lost specimens, but as Kéler's excellent figures (1958, fig. 39) of this species were drawn from a specimen in the Nitzsch collection it seems more satisfactory to designate this specimen as neotype than one not seen by Dr. von Kéler.

Neotype female of *Damalinia longicornis* (Nitzsch) the specimen on slide No. 41 marked " type " by Dr. von Kéler, in the Zoologisches Institut, Halle.

Liotheum (Colpocephalum) ochraceum (p. 299)

A *nomen novum* for " Pulex avis pluvialis Redi exp. fig. sup.", and valid because we have restricted (1950 : 254) *Pediculus charadrii* Linn. to another of the species shown on Redi's plate 11. The species drawn by Redi fits Nitzsch's definition of *Colpocephalum*, but his host-record " Charadrii Vanelli *et al.*" cannot be accepted because the host is of necessity that of Redi's material, which we have defined (1950 : 255) as *Charadrius apricarius oreophilus*. Redi's figure can be assumed to represent the *Actornithophilus* parasitic on this host.

A neotype will be designated for this species in the publication mentioned under *Actornithophilus totani* (p. 18 above).

Liotheum (Menopon) pallidum (p. 299)

A *nomen novum* for " Pulex Capi Red. exp. XVII " (sic, actually XVI) and " Ped. gallinae Panz. Faun. Ins. Germ. 51.f.21 ". The host-record is " Galli gallinacei et aliar. gallin.", for which must be read *Gallus domesticus*, since this is the host of the species of Redi and Panzer.

Although the species of these two authors are the same and are also the same as *Pediculus gallinae* Linn., the fact that Nitzsch does not mention Linné's species forces us to erect a neotype.

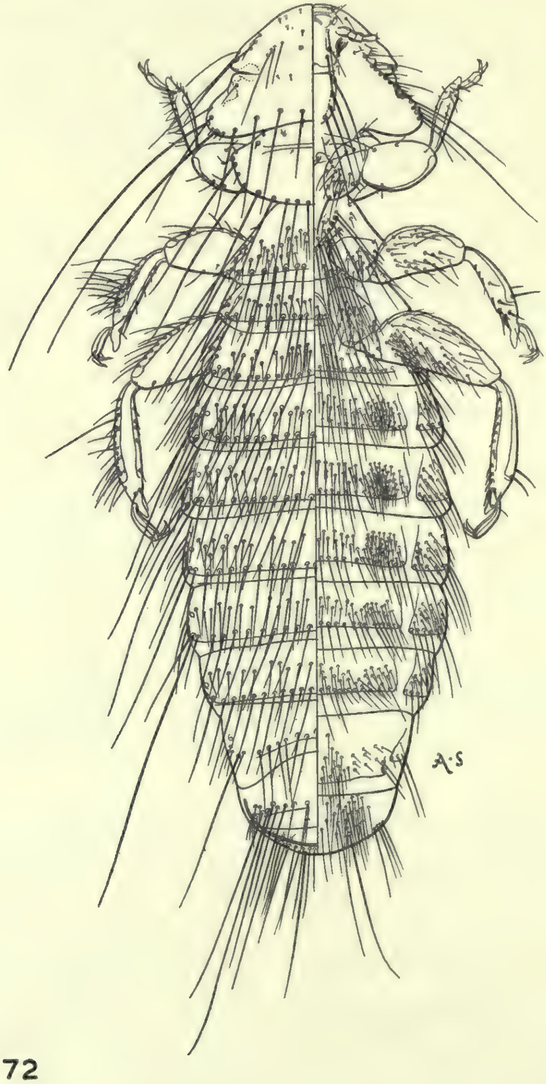

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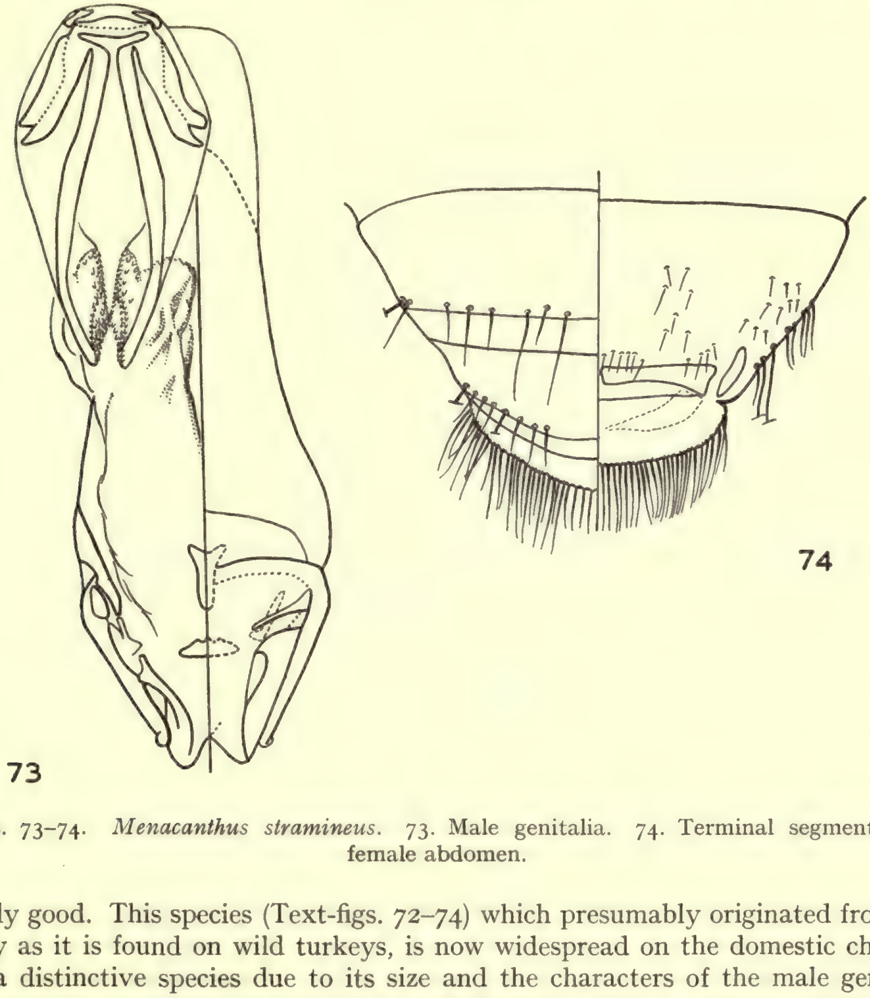
FIG. 72. *Menacanthus stramineus* (Nitzsch), male (Arthur Smith del.)

Neotype of *Menopon pallidum* (Nitzsch, 1818) the male neotype specimen of *Menopon gallinae* (Linn.) designated by Clay & Hopkins, 1950 : 262.

Liotheum (Menopon) stramineum (p. 300)

A *nomen novum* for " Ped. Meleagridis Panz. Faun. Ins. Germ. 51.f.20 ". Since Panzer's species is not *Pediculus meleagridis* Linn., Nitzsch's name is valid and necessary. The host of Panzer's material is *Meleagris gallopavo* (domestic) and his figure is fairly good. This species (Text-figs. 72–74) which presumably originated from the turkey as it is found on wild turkeys, is now widespread on the domestic chicken. It is a distinctive species due to its size and the characters of the male genitalia and has been made the type of the monotypic genus *Eomenacanthus* ; however as shown by Hopkins & Clay (1955 : 180) the *Menacanthus-Amyrsidea* group of species found on the Galliformes is not easily divisible into natural groups and it seems, until a full revision of these species has been undertaken, that it is more satisfactory to leave them in their original larger groupings although these may prove to be polyphyletic.



FIGS. 73–74. *Menacanthus stramineus*. 73. Male genitalia. 74. Terminal segments of female abdomen.

Measurements in mm.

	Male		Female	
	Length	Breadth	Length	Breadth
Head	0·39	0·73	0·43	0·72
Prothorax	—	0·57	—	0·56
Pterothorax	—	0·63	—	0·70
Abdomen	2·01	0·93	2·07	1·08
Total	2·97	—	3·10	—
Genitalia	0·84	—	—	—

Neotype male of *Menacanthus stramineus* (Nitzsch, 1818) in the British Museum (Natural History) collection (slide No. 646) from *Meleagris gallopavo* (domestic) from Windermere, England. Neoparatypes : 9 ♂, 11 ♀ from wild *Meleagris gallopavo* from various localities ; 63 ♂, 88 ♀ from *Gallus domesticus* from various localities in the British Isles, Africa and Australia.

Liotheum (Menopon) cucullare (p. 300)

A *nomen novum* for " Pulex Sturni candidi Red. exp. t. XVII. (mas) ". The name is valid, since Redi's species had not previously been validly named. Redi's plate depicts a *Myrsidea* and subsequent description of Nitzsch's specimens shows that they, also, belonged to this genus. The host of Redi's specimen was presumably an albino *Sturnus vulgaris* and Nitzsch's use of this species as the host can be accepted. A quick survey of *Myrsidea* species from some of the Passeres shows that the most obvious characters of the species, that is the modifications of the metathorax and anterior terga of the abdomen in the females, are variable within groups of species from related hosts and probably of little phylogenetic importance and not, therefore, good characters on which to subdivide the genus *Myrsidea*. In the species of *Myrsidea* from the Sturnidae, for instance, the metathorax may be unmodified (*cucullaris*) or greatly produced posteriorly (*pungens* and *buxtoni*) ; the first abdominal notum may be unmodified (*invadens*[1]) or enlarged and pointed posteriorly (*cucullaris*), reduced in size (*teraokai*), or apparently absent (*buxtoni*) ; the notum of segment II may be unmodified (undescribed species) or modified in various ways (usually being narrowed centrally) or it may be reduced to a small triangular sclerite each side of the prolongation of the metathorax (*buxtoni*). No characters have yet been found which are common to all the species of groups found on related hosts, such as the Sturnidae, Corvidae and others, but the number of setae on the posterior margin of the prothorax, number of setae on the metasternal plate, and the relative length and thickness of the post-spiracular setae of the males are useful characters. For instance, in the species from the Sturnidae there are 6 setae on the posterior margin of the prothorax, 6 (rarely 7–9) setae on the metasternal plate and the post-

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[1] It has been assumed that specimens from *Acridotheres tristis* are *Myrsidea invadens* (Kellogg & Chapman, 1902) although the original figure does not show the backward prolongation of terga II and III. These terga are difficult to see in mounted specimens and it is possible that the segmental lines shown in the figure are those of the sternites, which are darker in colour and show through the specimen. The only clue indicating that this figure represents the usual species from *Acridotheres tristis* is that a few setae are shown in the middle of what appears to be segment III and these probably represent the marginal setae of the backwardly produced tergum of III.

spiracular setae of segments III, V and VI in the male are shorter and finer than those on the remaining segments with the exception of I in some species. While the majority of species from the Corvidae have more than 6 marginal prothoracic setae, 8 or more metasternal setae and the post-spiracular setae on III are as long as those on II, there are exceptions to this. Within the group of described species from the Sturnidae, *cucullaris* is distinguished in both sexes by the reduction of the hypopharyngeal sclerites, that is of the lingual and sitaphore sclerites, and of the epipharyngeal crest or " pestle " (see Clay, 1959), by the lengths of some of the head setae and by the long dorsal seta each side of the prothorax ; in the female by the characters of the metathorax and terga of segments I–IV of the abdomen ; in the male by the dorsal chaetotaxy of the abdomen and the sclerite of the genital sac. This last structure shows the most useful characters for the separation of males

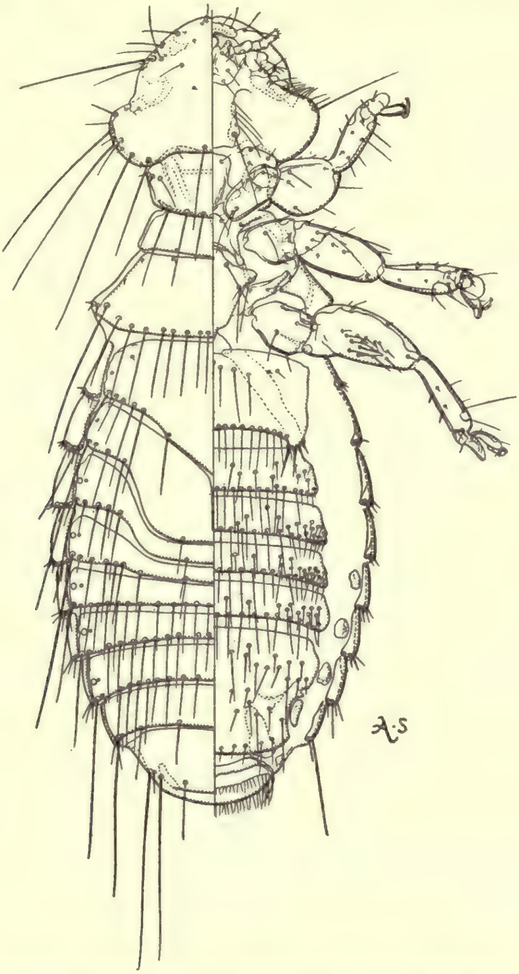

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FIG. 75. *Myrsidea cucullaris* (Nitzsch), female (Arthur Smith del.).

in *Myrsidea*, but is unfortunately rarely included in figures of the genitalia, which without it show little or no specific difference; it is quite useless to base descriptions of new species of *Myrsidea* on males only, if this character is not shown.

FEMALE. As shown in Text-fig. 75. There is some variation (4–5, rarely 3, each side) in the number of shorter setae on the gular plate; the metasternal plate has 6, rarely 7, setae; there are 3–4 stout spine-like setae at each postero-lateral corner of the metathorax, and on the posterior margin of the metatergum there are a long stout seta at each corner and 12–20 shorter marginal setae; the longer setae in the middle of the second abdominal sternum vary from 7–13 and the marginal setae of this sternum from 16–21, there are 4 stout spine-like setae at each corner, rarely 5 on one side (in related species rarely 3 on one side), in one specimen one of the spines is bifid; the rest of the abdominal chaetotaxy shows a certain amount of variation in numbers except for the number of dorsal setae (in some cases a diagnostic specific character) of tergum VIII which comprise a post-spiracular seta and spine-like seta each side and 4 longer setae in the centre of the posterior margin.

MALE. General characters as shown in Pl. V, fig. 1. The shorter setae of the gular plate are usually 4 each side, rarely 3 or 5; metasternal plate has 6 setae rarely 5; the stout spine-like setae at the lateral corners of the metathorax number 2–3, rarely 4, and the posterior setae of the metatergum comprise one long stout seta at each postero-lateral corner and 5–10 shorter marginal setae. Post-spiracular setae of II, IV, VII and VIII long and stout, those of III, V, VI shorter and finer, those of I intermediate in length and stoutness. In addition to the post-spiracular setae tergum I has from 8–10 marginal setae; terga II–VIII have a lateral spine-like seta near the post-spiracular seta each side and in addition to these the following marginal setae: II–V, 8–12; VI, 6–10; VII, 4–6; on segments V–VII one or more of the outer setae each side may be spine-like. The chaetotaxy of VIII is characteristic (Text-fig. 76) and can be used to separate *cucullaris* from some other species. The longer setae in the middle of the second abdominal sternum vary from 4–11 and the marginal setae of this tergum from 12–17: chaetotaxy of sterna III–VI with some variation but lateral setae of III–IV fewer than in female and segments IV–VI with 0–3 central submarginal setae; setae of posterior segments as in Text-fig. 76. Pleurites with marginal row of spine-like setae as in female. Genitalia with general characters as typical for *Myrsidea*; sclerite of genital sac diagnostic (Pl. V, fig. 2).

Measurements of neotypes in mm.

	Male		Female	
	Length	Breadth	Length	Breadth
Head	0·30	0·46	0·31	0·49
Prothorax	—	0·30	—	0·33
Metathorax	—	0·42	—	0·57
Abdomen	0·84	0·54	1·11	0·76
Total	1·49	—	1·87	—
Genitalia*	0·47	—	—	—

* Not neallotype.

Neotype female (Text-fig. 75), slide No. 647, and *neallotype* male (Pl. V, fig. 1), slide No. 648, of *Myrsidea cucullaris* (Nitzsch, 1818) in the British Museum (Natural History) from *Sturnus vulgaris vulgaris* Linn. from Romford, Essex. *Neoparatypes* : 54 ♂, 58 ♀ from *Sturnus vulgaris* from various localities in the British Isles, Italy, Switzerland, Estonia and Sweden.

Liotheum (Menopon) mesoleucum (p. 300)

A *nomen novum* for " Ricinus Cornicis Deg. VII.t.IV.f.11 (pupa.)." *Ricinus cornicis* de Geer 1778, which is a *Myrsidea*, is not preoccupied by *Pediculus cornicis* J. C. Fabricius 1775, which is a *Philopterus*, so Nitzsch's name falls into synonymy. The neotype we erected (1954 : 239) for *Myrsidea cornicis* (de Geer) is necessarily the neotype of *Myrsidea mesoleuca* (Nitzsch).

Liotheum (Menopon) minutum (p. 300)

An unnecessary *nomen novum* for *Pediculus curuccae* Schrank. Nitzsch's host-record is " passerum Linn. plur.", for which must be substituted *Sylvia curucca*, the host of Schrank's material. This is important, because Giebel (1874 : 286, pl. 15, f. 2) attempted to restrict the name to the form found on *Parus major* ; the latter form, if distinct, will require renaming. No specimens of *Menacanthus* have been seen from *Sylvia curucca* so that it has not been possible to erect a neotype for *Menacanthus curuccae* (Schrank).

Liotheum (Menopon) phanerostigmaton (p. 300)

An unnecessary *nomen novum* for *Pediculus fasciatus* Scopoli. Nitzsch's material, like Scopoli's, was from *Cuculus c. canorus*, and our neotype (1951 : 13) of *Cuculiphilus fasciatus* (Scopoli) is also the neotype of *C. phanerostigmaton* (Nitzsch).

Liotheum (Trinoton) conspurcatum (p. 300)

A *nomen novum* for *Pediculus anseris* Sulzer, 1776 (*Abgekürzten Geschichte der Insekten*, pl. 29, fig. 4) *nec Pediculus anseris* Linn., 1758. Nitzsch gives the host-record " Anseris cinerei et Cygni olor ", but the host must of necessity be that of Sulzer's material, which is " Gans "[1], by which *Anser anser domestica* is doubtless meant. Sulzer's figure certainly represents a *Trinoton*.

This name furnishes an unusually good example of the reason why we would have found it necessary to designate neotypes for the species of which the names published in Nitzsch's 1818 paper are not *nomina nuda* even if his collection had not been almost completely destroyed. As originally published, *Trinoton conspurcatum* (Nitzsch) was a mixture of a new name for the species depicted by Sulzer and a *nomen nudum* representing Nitzsch's undescribed material from *Cygnus olor*, and the name must necessarily be restricted to the former as the only described element. But Piaget (1880, p. 588, pl. 44, fig. 2) used the name *conspurcatum* for the form found on swans and renamed the form from the domestic goose as *Trinoton continuum* (*l.c.*, p. 591); some authors might erroneously regard Piaget's action as a valid restriction of Nitzsch's name.

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[1] All the names of insects in the text of this work are vernacular but both Latin and vernacular names are used in the legends of the plates. The description (p. 241) is practically valueless and Nitzsch did not refer to it, but the vernacular name " Ganslaus " used both here and in the plate-legend furnishes the only host-record.

Since *Trinoton anserinum* (J. C. Fabricius) is a senior synonym of *T. conspurcatum* (Nitzsch, 1818), we designate as neotype of the latter nominal species the lectotype of *Trinoton anserinum* (J. C. Fabricius, 1805).

Trinoton lituratum (p. 300)

"Huc forte Ric. Lari Deg. VII, t.IV, f.12." A doubtful reference like this does not redeem *lituratum* from being a *nomen nudum*.

Liotheum (Laemobothrion) giganteum (p. 301)

A *nomen novum* for *Pediculus maximus* Scopoli, *P. buteonis* "Linn. Fabric.", and *Pediculus circi* Geoffroy. There is no such name as *Pediculus buteonis* Linn., and *P. buteonis* Fabricius is an unwanted *nomen novum* for *P. maximus* Scopoli; Geoffroy's nomenclature is not binominal, but his descriptive phrase was shortened to available form by Fourcroy in 1785 (see part 3 : 258) and the correct name of the species Geoffroy described is *Laemobothrion circi* (Fourcroy). *Laemobothrion giganteum* (Nitzsch) as described in 1818, therefore, is a composite of *L. maximum* (Scopoli) and *L. circi* (Fourcroy) and we hereby restrict the name to the latter of these two elements.

Giebel's redescription of *giganteum* is from material, obtained from a "Steinadler" (*Aquila chrysaëtos*), which was probably not conspecific either with *L. circi* or *L. maximum*, while it is obvious that this is so in the case of specimens subsequently wrongly regarded as type-material of *giganteum* by von Kéler (1937 : 322) as he considered these to be *L. tinnunculi*. In any case it cannot be too strongly emphasized that the types of the *nomina nova* proposed by Nitzsch in 1818 are not any specimens in Nitzsch's collection (now almost wholly destroyed), but the lost types of the earlier authors, and therefore the neotypes which we have erected to replace them.

Our restriction of the originally composite *Laemobothrion giganteum* (Nitzsch) to the element the correct name of which is *L. circi* (Fourcroy) automatically makes the neotype we erected for the latter into the neotype of *L. giganteum* (Nitzsch) also.

Liotheum (Laemobothrion) hasticeps (p. 302)

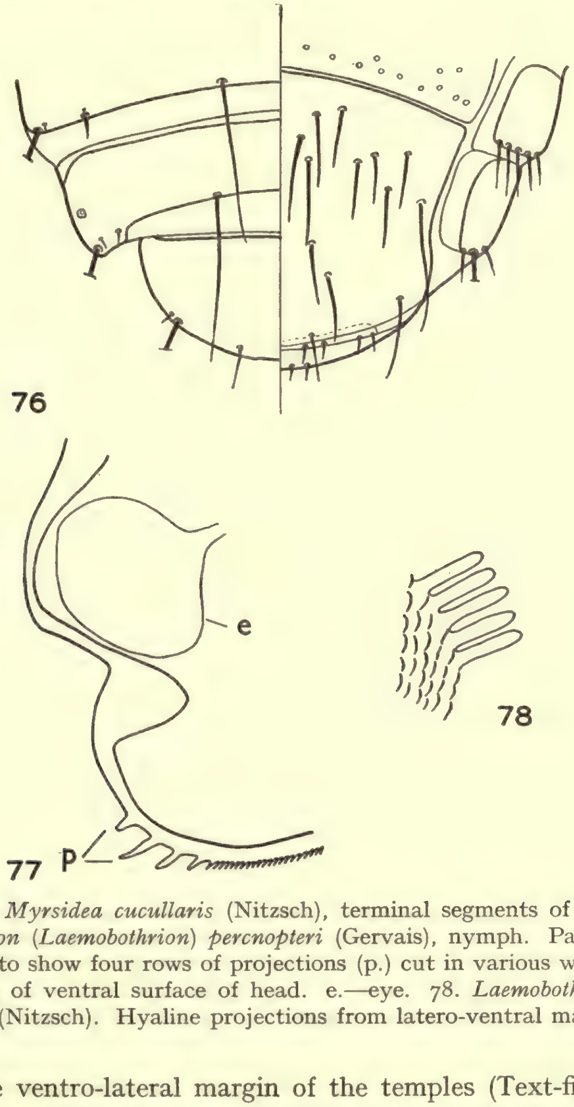
A *nomen novum* for "Pedic. Tinnunculi Linn., Fabric.", "Redi expt. t.XIII" and "Panz. 51, 17."

Redi's figure is that on which Linné's name was partly based and Panzer's, though independent, depicts the same species. We hereby restrict Nitzsch's name to *Laemobothrion tinnunculi* (Linné, 1758) and thus make the neotype we erected for the latter (Clay & Hopkins, 1950 : 230) also the neotype of *L. hasticeps* (Nitzsch, 1818).

Liotheum (Laemobothrion) atrum (p. 302)

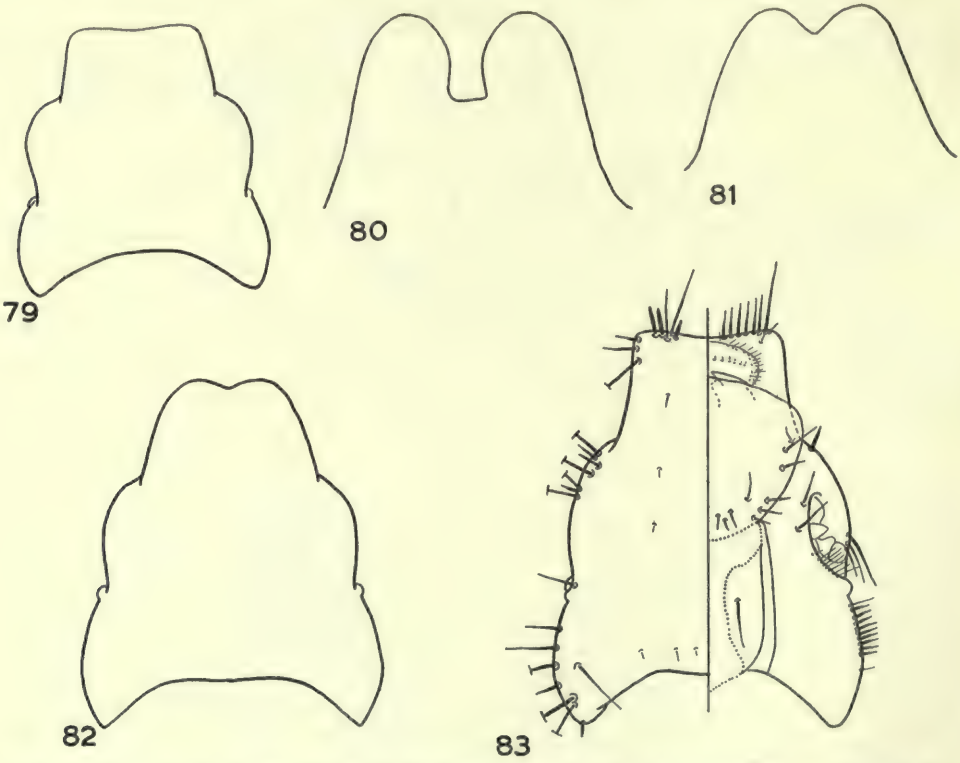
A valid *nomen novum* for the species depicted on Redi's pl. 4, fig. 1, which is the *Laemobothrion* of the " folaga " (= *Fulica a. atra*) and which previously had no valid name.

The species of *Laemobothrion* as listed in Hopkins & Clay, 1952 : 182–186 resemble each other in the formation of the head, in the presence of a row or rows of hyaline projections on the ventro-lateral margin of the temples (Text-figs. 77–78) and in the general characters of the thorax and abdomen including the genital regions of the abdomen in both sexes. All the species have a minute seta each side of the anterior margin of at least two tergites (Text-figs. 84, *s*) and a patch of minute



FIGS. 76–78. 76. *Myrsidea cucullaris* (Nitzsch), terminal segments of male abdomen. 77. *Laemobothrion* (*Laemobothrion*) *percnopteri* (Gervais), nymph. Part of transverse section of head to show four rows of projections (p.) cut in various ways and passing into sculpturing of ventral surface of head. e.—eye. 78. *Laemobothrion* (*Eulaemobothrion*) *atrum* (Nitzsch). Hyaline projections from latero-ventral margin of head.

comb-like structures, rather similar to those found in *Microctenia*, each side of sternite V and sometimes on VI and on the venter of the 3rd femora. These species are found on the bird orders Falconiformes, Ciconiiformes and Gruiformes (Rallidae, Aramidae, Psophiidae) and fall into two groups: one on the Falconiformes (*Laemobothrion*) and the other (*Eulaemobothrion*) on the rest of the bird groups. *Eulaemobothrion*, which can usefully be recognized as a subgenus, is distinguished by the presence of stout spine-like setae on the anterior margin of the head, the more elongated points of the mandibles (sexually dimorphic in *opisthocomi*) and by the presence of a semi-circular hyaline area (Text-fig. 85) which lies between two of the abdominal sternites (probably II and III, unless it represents sternum II). This last structure is not always easily seen in specimens mounted in canada balsam, although the upper margin can usually be made out. There seems little advantage in recognizing the four genera into which *Eulaemobothrion* has been divided by Eichler (see Hopkins & Clay, 1952 : 182). A key to the species of *Eulaemobothrion* given below



FIGS. 79–83. 79–82. Outline of heads of *Laemobothrion* (*Eulaemobothrion*), drawn to same scale. 79. *L. gracile* Giebel, Male. 80–81. *L. opisthocomi* Cummings, outline of preantennal region. 80. Male. 81. Female. 82. *L. cubense* Kellogg & Ferris, male. 83. *L. atrum* Nitzsch. Male head, to show dorsal and ventral chaetotaxy; setae of antenna not shown.

excludes three : *L. pallescens* Kellogg, 1908 (*nom. nov.* for *pallidum* Piaget) and *L. emarginatum* Piaget, both represented in the Piaget collection by nymphs, and *L. plegadilymanticum* (Eichler, 1943) of which no specimens have been seen.

KEY TO THE SPECIES OF EULAEMOBOTHRION

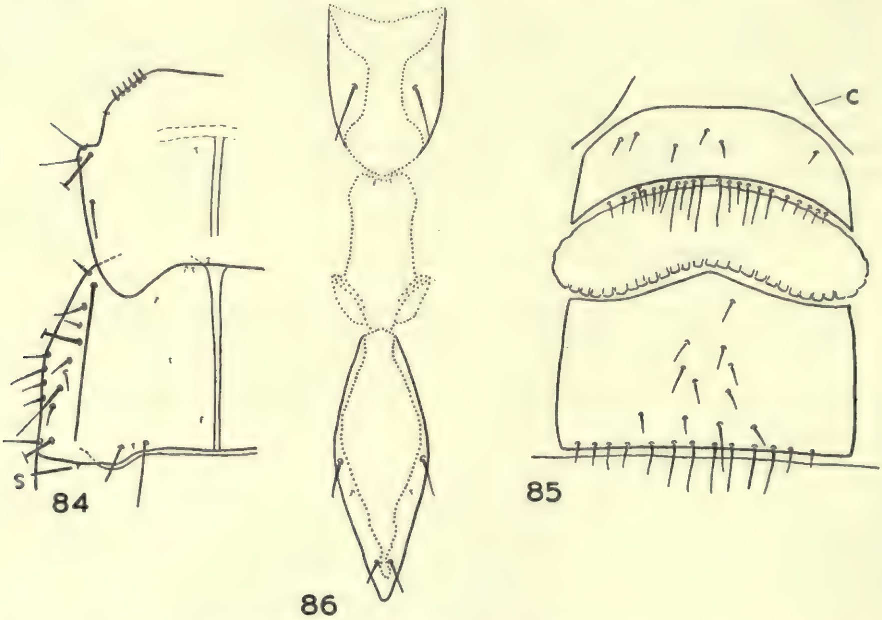
1.	Anterior margin of head with stout spine-like setae (Text-fig. 83) ; semi-circular hyaline area between sternites II and III (Text-fig. 85)	*Eulaemobothrion* 2
–	Without above characters	*Laemobothrion*
2.	Abdominal segments I–VII or II–VII with minute anterior tergal setae (Text-fig. 84, *s*)	3
–	Abdominal segments I–II with anterior tergal setae	4
3.	Anterior tergal setae on II–VII ; 4–6 setae each side of gular plate	*setigerum* Piaget
–	Anterior tergal setae on I–VII ; 1 seta each side of gular plate	*kelloggi* Bedford
4.	Anterior margin of head narrowly emarginate (Text-figs. 80–81) ; lateral margins of thorax with stout spine-like setae ; anterior margin of head and mandibles sexually dimorphic	*opisthocomi* Cummings
–	Without above combination of characters	5
5.	Sitaphore sclerite and epipharyngeal " pestle " normal	6
–	Sitaphore sclerite greatly reduced ; epipharyngeal " pestle " not apparent	*chloropodis* (Schrank) & *atrum* Nitzsch.
6.	Forepart of head narrow and elongate (Text-fig. 82)	*cubense* Kellogg & Ferris
–	Forepart of head shorter and broader (Text-fig. 79)	*gracile* Giebel

The population from *Fulica atra* appears to be near that from *Gallinula chloropus* sspp., but the available material (? = *chloropodis* Schrank, 1803) from the latter host is scanty and in poor condition. Further specimens are required for a detailed examination of the two populations, but if they do prove to be distinct it will not be more than subspecifically.

MALE OF *atrum*. General characters as shown in Pl. VI, fig. 5. Chaetotaxy of head as shown in Text-fig. 83 ; there are usually 3 + 3 of the stout spine-like setae on the anterior margin, but occasionally there are two or four on one side ; there is usually one seta each side of the gular plate, but one specimen has two on one side ; there are other slight variations in length, number and position of some of the head setae. Dorsal view of thorax as shown in Text-fig. 84 ; the number of setae on the lateral projection of the prothorax varies from three to four. Sternal plates of thorax as in Text-fig. 86 ; the long setae each side of the meso-metasternal plate may be 1 + 1 or 1 + 2, and the setae at the posterior end of this plate two or three, one sometimes being longer than the others. Abdomen with tergal plates I–VIII undivided, with lateral internal thickening and separated from the pleurites on the lateral margin by a narrow suture ; tergal plate IX may be continuous across the segment or divided medially. Sternal plates III–VI in the form of rectangular sclerites separated from the pleurites ; the semicircular hyaline area mentioned above is shown in Text-fig. 85 ; sternite V with lateral area of comb-like structures each side, a smaller area is found each side of VI and also one on the venter of the third femur. Terminal segments as shown in Text-fig. 87. Genitalia as shown in Text-figs. 89–91.

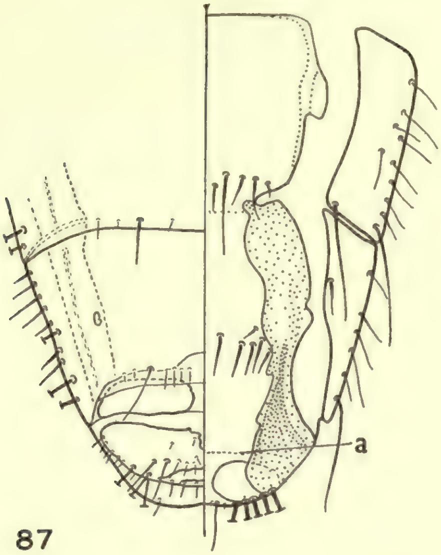
FEMALE. General characters as shown in Pl. VI, fig. 6. Chaetotaxy of head as in male with some individual variation. Thorax as in male. Abdomen with tergal plates I–VIII undivided ; sterna I–VI as in male, but there are no minute comb-like structures on sternum VI. Terminal segments as shown in Text-figs. 92–94

Chaetotaxy of abdomen. Tergites I–II have a minute seta each side of the anterior margin (Text-fig. 84, *s*). Tergocentral setae on segments I–VI, 3 + 3 ; laterally tergites I–VIII with stout post-spiracular setae, those on II–VIII with the two small adjacent setae characteristic of the Amblycera ; posterior and lateral to the post-spiracular seta is another (occasionally two on one side) which on segments I–V is short and on VI–VIII is long and stout ; apart from these two setae there are other lateral tergal setae and pleural setae, the latter being probably naturally ventral but not always distinguishable from the tergal setae in mounted specimens.



Figs. 84–86. *Laemobothrion* (*E.*) *atrum* Nitzsch. 84. Dorsal view of thorax, male. s.—anterior seta of tergum I. 85. Semicircular hyaline area at base of abdomen, drawn from various specimens in spirit and canada balsam. c.—posterior edge of 3rd coxa. 86. Gular and sternal plates, male.

There is some variation in the number, length and position of these setae but the following numbers are taken from a male specimen which is mounted in such a way that the tergal setae are easily distinguishable from the pleural : lateral tergal setae (given for one side only and omitting the post-spiracular setae and the associated postero-lateral setae mentioned above) : I, 4 ; II, 6 ; III, 9 ; IV–VI, 8. Pleural setae : I, 3 ; II, 19 ; III, 17 ; IV, 18 ; V, 14 ; VI, 18 ; terminal segments as shown in Text-figs. 87 and 92. The females tend to have rather more setae, but the individual variation is such that the number of setae cannot be used as a specific character unless differing markedly. Sternal setae of I–III and VII to end as in Text-figs. 85, 87,



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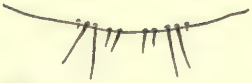

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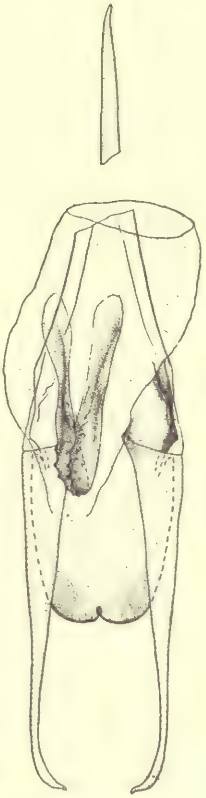

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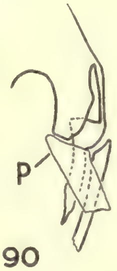

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91

FIGS. 87–91. *Laemobothrion* (*E.*) *atrum*, male. 87. Terminal segments of abdomen. a.—internal. 88. a. enlarged. 89. Genitalia (R. S. Pitcher del.). 90. Details of sclerites at base of paramere (dorsal). p.—paramere. 91. Part of 90 ventral.

92; IV, 14–18; V, 21–35; VI, 11–18. The stout setae at the end of the male abdomen vary in number from 3–6, one or more sometimes being replaced by a thinner one.

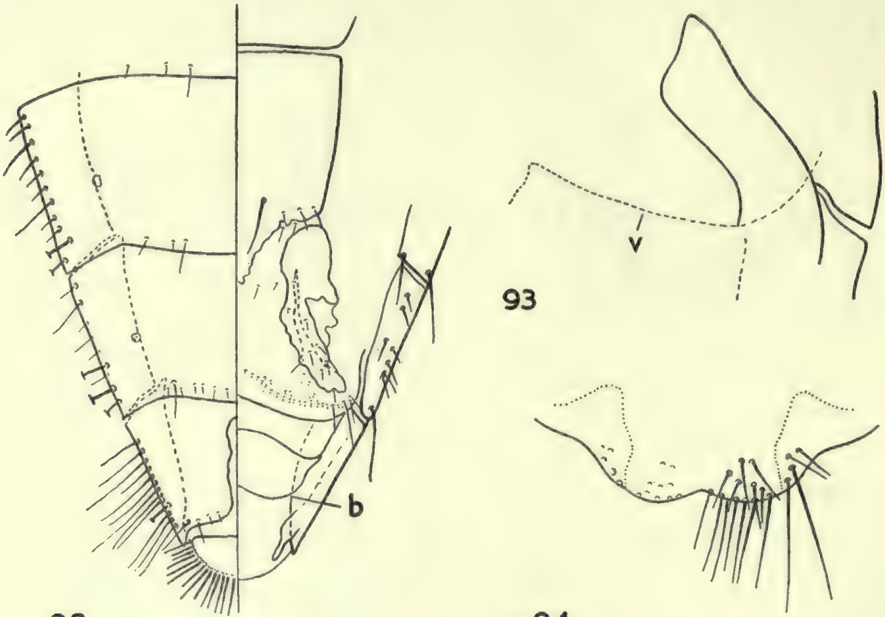
Measurements in mm.

	Length		Breadth	
	Male	Female	Male	Female
Head	1·12*	1·26*	1·03	1·17
Prothorax	—	—	0·88	1·07
Pterothorax	—	—	1·20	1·47
Abdomen	—	—	1·37	1·95
Total	6·20	8·00	—	—
Genitalia (to end of parameres)	2.34	—	—	—

* Taken from highest part of anterior margin to middle of occipital margin.

Neotype of *Laemobothrion* (*Eulaemobothrion*) *atrum* (Nitzsch, 1818) male in the Meinertzhagen Collection, British Museum (Natural History), slide No. 11983*a* from *Fulica a. atra* Linn. from Morocco, October 1938. *Neoparatypes*: 10 ♂, 5 ♀ from the same host form from Morocco, Israel and Rajputana.

The opportunity is also taken to select a lectotype of *Laemobothrion* (*Eulaemobothrion*) *setigerum* Piaget, 1889 as follows: Male in the Piaget Collection, British Museum (Natural History), slide No. 1438*a* from *Ibis cayennensis*. Paratypes: 2 ♂, 1 ♀.



Figs. 92–94. *Laemobothrion* (*E.*) *atrum*, female. 92. Terminal segments of abdomen. 93. Sclerite of dorsal wall of genital chamber. v.—vulva. 94. b. of Fig. 92 enlarged.

Liotheum (Physostomum) nitidissimum (p. 302)

This is a *nomen novum* for *Ricinus fringillae* de Geer and the neotype we erected (1954 : 237) for the latter is therefore also the neotype of *R. nitidissimus* (Nitzsch).

Liotheum (Physostomum) sulphureum (p. 302)

A *nomen novum* for *Pediculus dolichocephalus* Scopoli. The neotype which we erected (1951 : 12) for *Ricinus dolichocephalus* (Scopoli) is automatically the neotype of *Ricinus sulphureus* (Nitzsch).

Gyropus gracilis (p. 304)

As this is a *nomen novum* for *Pediculus porcelli* Schrank, the neotype we erected (1954 : 254) for *Gliricola porcelli* (Schrank) is necessarily also the neotype of *Gliricola gracilis* (Nitzsch).

LIST OF SPECIES

The synonymy of the following names has been established :

Specific name	Present status	*Page*
adustus Olfers	*Philopterus corvi* (Linn., 1758)	26
anatis Fabricius	*Anaticola crassicornis* (Scopoli, 1763)	10
anserinus Fabricius	*Trinoton anserinum* (Fabricius, 1805)	21
atratus Nitzsch	*Philopterus atratus* Nitzsch, 1818	32
atrum Nitzsch	*Laemobothrion* (*Eulaemobothrion*) *atrum* (Nitzsch, 1818)	53
attenuatus Nitzsch	*Nomen nudum*	39
baculus Nitzsch	*Columbicola columbae* (Linn., 1758)	43
bifurcatus Olfers	*Gliricola porcelli* (Schrank, 1781)	23
chelidonius Schrank	Name rejected as that of a chimaera	19
chloropodis Schrank	*Laemobothrion* (*Eulaemobothrion*) *chloropodis* (Schrank, 1803)	14
collurionis Schrank	*Philopterus coarctatus* (Scopoli, 1763)	11
communis Nitzsch	*Philopterus citrinellae* (Schrank, 1776)	34
conspurcatum Nitzsch	*Trinoton anserinum* (J. C. Fabricius, 1805)	51
crassus Nitzsch	*Trichodectes melis* (Fabricius, 1805)	44
cucullare Nitzsch	*Myrsidea cucullaris* (Nitzsch, 1818)	48
dubius Nitzsch	*Trichodectes mustelae* (Schrank, 1803)	45
ebraeus Nitzsch	*Esthiopterum gruis* (Linn., 1758)	43
elongatus Olfers	*Ricinus elongatus* (Olfers, 1816)	26
excisus Nitzsch	*Philopterus excisus* Nitzsch, 1818	35
falcicornis Nitzsch	*Goniodes pavonis* (Linn., 1758)	44
filiformis Olfers	*Columbicola filiformis* (Olfers, 1816)	31
fornicatus Olfers	*Saemundssonia sternae* (Linn., 1758)	30
fulicae Schrank	*Incidifrons fulicae* (Linn., 1758)	18
giganteum Nitzsch	*Laemobothrion circi* (Fourcroy, 1785)	52
globifer Olfers	*Philopterus citrinellae* (Schrank, 1776)	31
gracilis Nitzsch	*Gliricola porcelli* (Schrank, 1781)	58
hasticeps Olfers	*Laemobothrion tinnunculi* (Linn., 1758)	25
hasticeps Nitzsch	*Laemobothrion tinnunculi* (Linn., 1758)	52
hirundinis Schrank	*Philopterus excisus* Nitzsch, 1818	19
hologaster Nitzsch	*Goniocotes gallinae* (De Geer, 1778)	44
icterodes Nitzsch	*Anatoecus icterodes* (Nitzsch, 1818)	37
jejunus Nitzsch	*Anaticola anseris* (Linn., 1758)	43
lanii Fabricius	*Philopterus coarctatus* (Scopoli, 1763)	7
latus Nitzsch	*Trichodectes canis* (De Geer, 1778)	44
leontodon Nitzsch	*Sturnidoecus sturni* (Schrank, 1776)	35
lituratum Nitzsch	*Nomen nudum*	52
longicornis Nitzsch	*Damalinia longicornis* (Nitzsch, 1818)	45
luridus Nitzsch	*Fulicoffula lurida* (Nitzsch, 1818)	40
melis Fabricius	*Trichodectes melis* (Fabricius, 1805)	21
mesoleucum Nitzsch	*Myrsidea cornicis* (De Geer, 1778)	51
milvi Schrank	*Laemobothrion circi* (Fourcroy, 1785)	19
minutus Nitzsch	*Nomen nudum*	39
minutum Nitzsch	*Menacanthus curuccae* (Schrank, 1776)	51
mustelae Schrank	*Trichodectes mustelae* (Schrank, 1803)	11
nitidissimum Nitzsch	*Ricinus fringillae* (De Geer, 1778)	58
ochraceum Nitzsch	*Actornithophilus ochraceus* (Nitzsch, 1818)	45
ovisarietis Schrank	*Damalinia ovis* (Schrank, 1781)	11

pallidum Nitzsch	*Menopon gallinae* (Linn., 1758)	46
phaeopodis Schrank	*Austromenopon phaeopodis* (Schrank, 1802)	10
phanerostigmaton Nitzsch	*Cuculiphilus fasciatus* (Scopoli, 1763)	51
pici Fabricius	*Penenirmus pici* (J. C. Fabricius, 1798)	7
pici Schrank	Rejected as a junior homonym	12
platyrhynchus Nitzsch	*Craspedorrhynchus haematopus* (Scopoli, 1763)	35
prognes Schrank	Name rejected as that of a chimaera	20
pterocephalus Olfers	*Ricinus rubeculae* (Schrank, 1776)	31
rotundus Rudow	*Saemundssonia scolopacisphaeopodis* (Schrank, 1803)	16
scalaris Burmeister	*Penenirmus pici* (J. C. Fabricius, 1798)	7
scalaris Nitzsch	*Damalinia bovis* (Linn., 1758)	45
scolopacisphaeopodis Schrank	*Saemundssonia scolopacisphaeopodis* (Schrank, 1803)	15
setosus Olfers	A member of the Anoplura	25
sphaerocephalus Olfers	*Damalinia ovis* (Schrank, 1781)	25
sphaerocephalus Nitzsch	*Damalinia ovis* (Schrank, 1781)	45
squalidus Nitzsch	*Anaticola crassicornis* (Scopoli, 1763)	43
stramineum Nitzsch	*Menacanthus stramineus* (Nitzsch, 1818)	47
stylifer Nitzsch	*Chelopistes meleagridis* (Linn., 1758)	44
subrostratus Nitzsch	*Nomen nudum*	44
sulphureum Nitzsch	*Ricinus dolichocephalus* (Scopoli, 1763)	58
tantali Fabricius	*Ardeicola tantali* (Fabricius, 1798)	10
temporalis Nitzsch	*Anaticola mergiserrati* (De Geer, 1778)	43
tetragonocephalus Olfers	*Goniodes pavonis* (Linn., 1758)	30
totani Schrank	*Actornithophilus totani* (Schrank, 1803)	18
trigonocephalus Olfers	*Menopon gallinae* (Linn., 1758)	30
tringae Schrank	Rejected as an unidentifiable junior homonym	15
truncatus Olfers	*Dennyus hirundinis* (Linn., 1758)	31
upupae Schrank	*Upupicola upupae* (Schrank, 1803)	12
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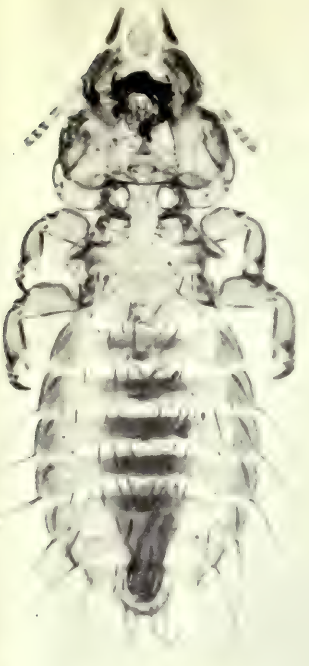
PLATE 1

FIG. 1. *Penenirmus pici* (Fabricius), male neotype.
FIG. 2. *Penenirmus pici* (Fabricius), female neallotype.
FIG. 3. *Penenirmus pici* (Fabricius), male genitalia.
FIG. 4. *Ricinus elongatus* (Olfers), female neallotype.
FIG. 5. *Ricinus elongatus* (Olfers), male neotype.



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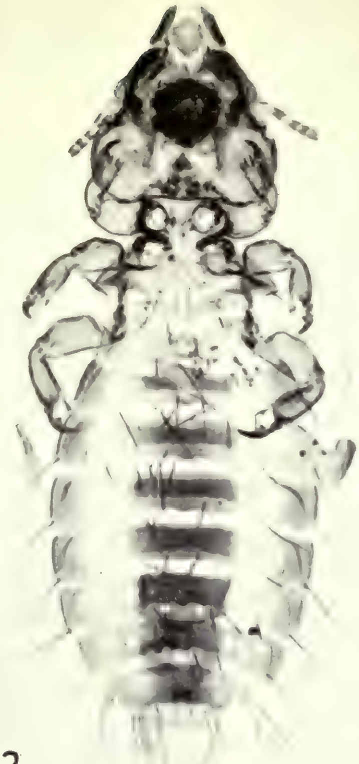

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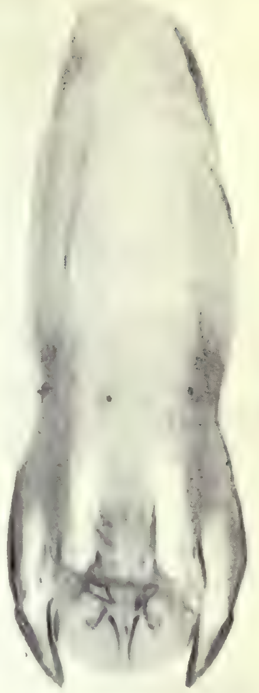

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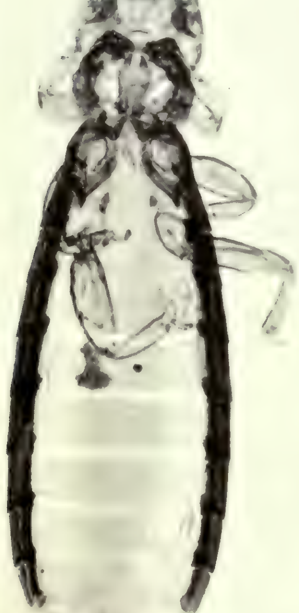

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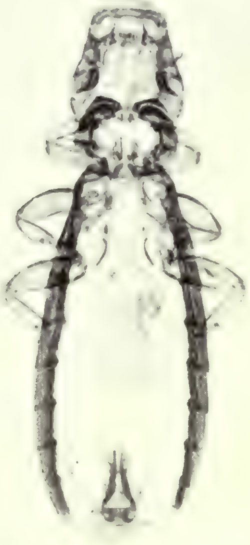

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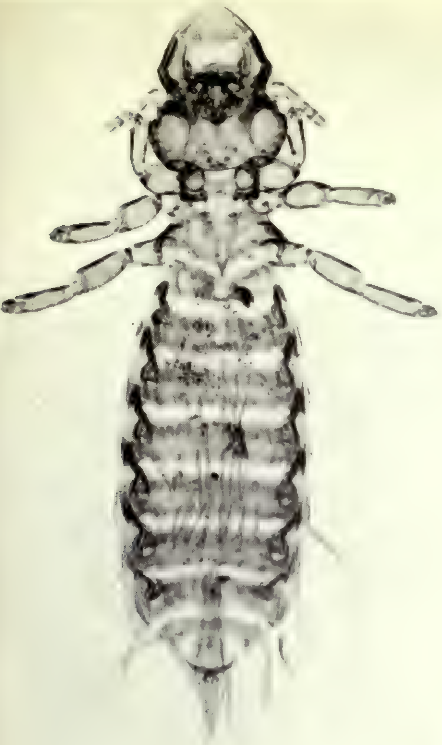
PLATE 2

FIG. 1. *Upupicola upupae* (Schrank), male neotype.
FIG. 2. *Upupicola upupae* (Schrank), female neallotype.
FIG. 3. *Anatoecus icterodes* (Nitzsch), male neotype.



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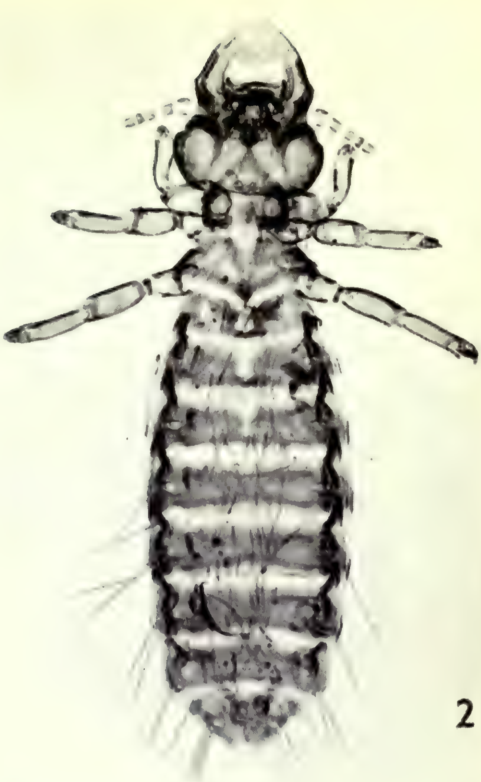

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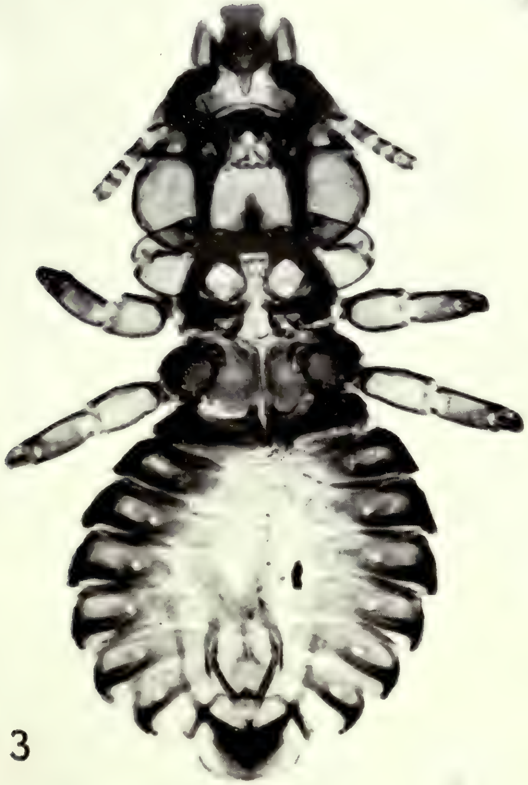

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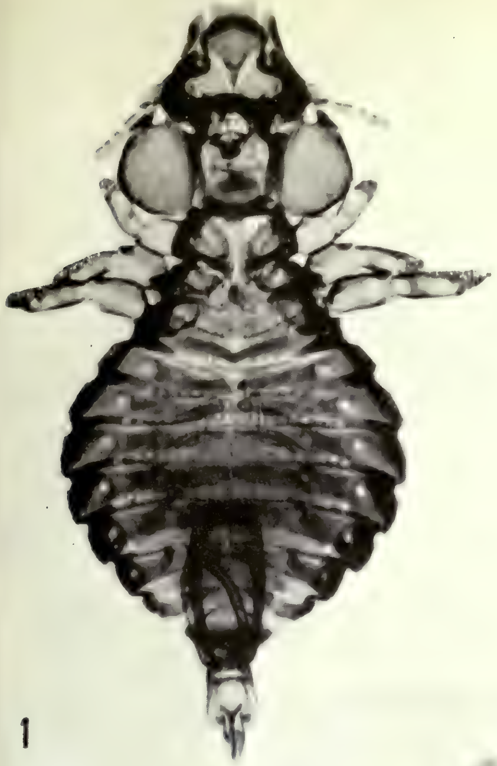
PLATE 3

Fig. 1. *Saemundssonia scolopacisphaeopodis* (Schrank), male neotype.
Fig. 2. *Philopterus excisus* Nitzsch, male neotype.
Fig. 3. *Saemundssonia scolopacisphaeopodis* (Schrank), male genitalia.



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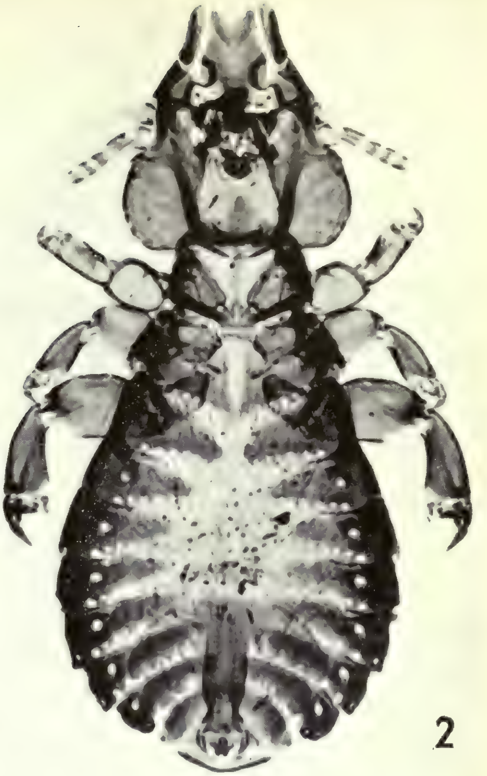

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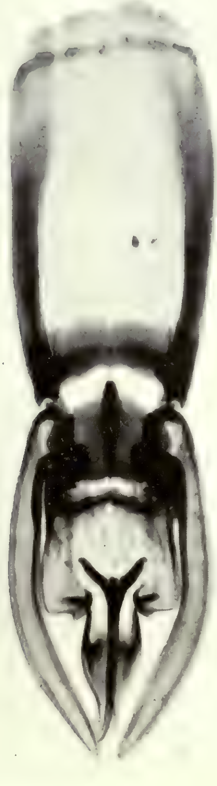

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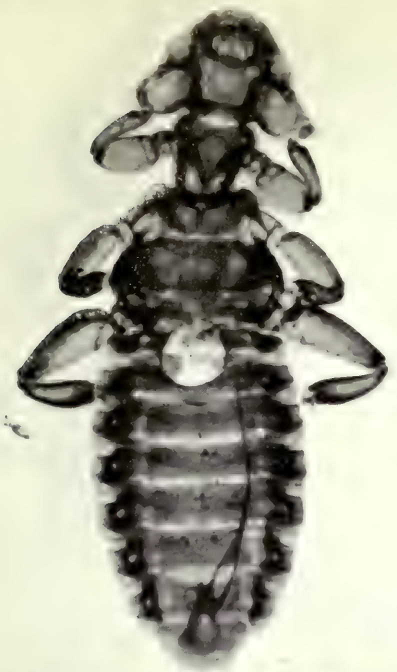
PLATE 4

Fig. 1. *Trinoton anserinum* (Fabricius), male lectotype.
Fig. 2. *Trichodectes melis* (Fabricius), male lectotype.
Fig. 3. *Trinoton querquedulae* (Linn.), sternites IV and V.
Fig. 4. *Trinoton anserinum* (Fabricius), sternites IV and V.



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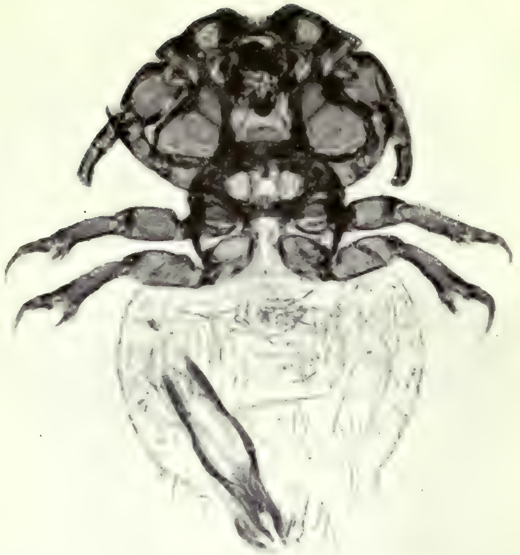

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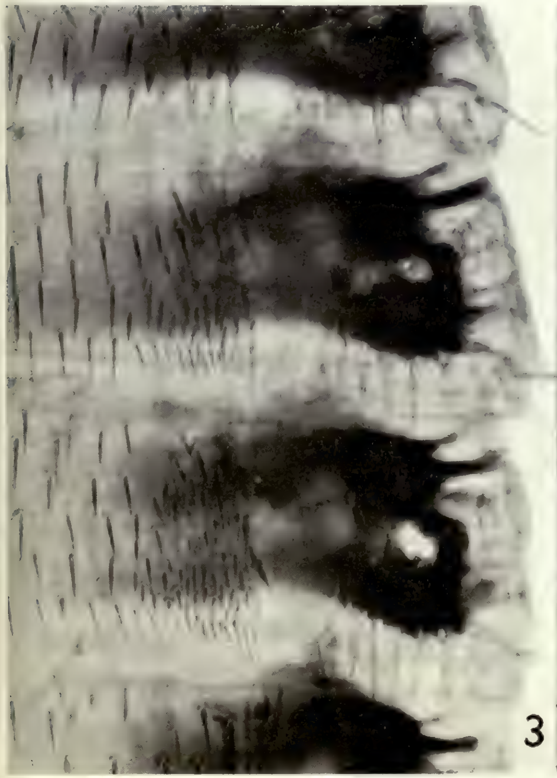

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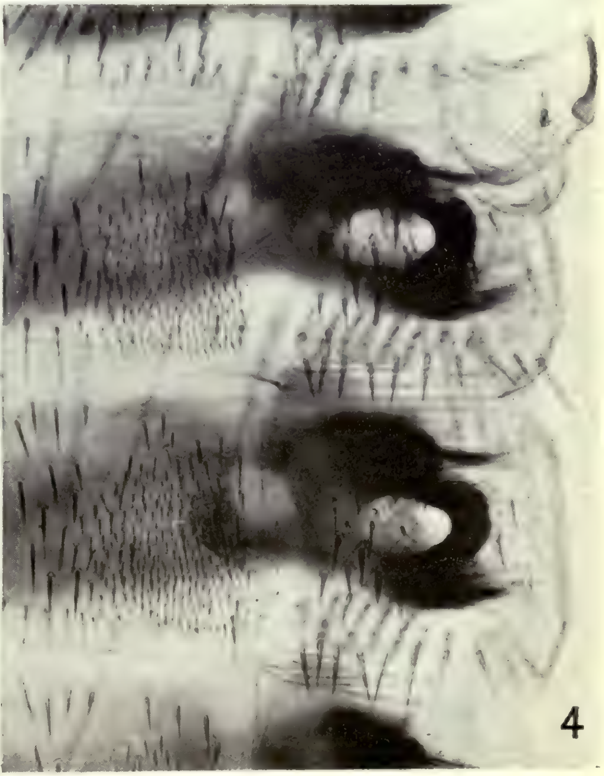

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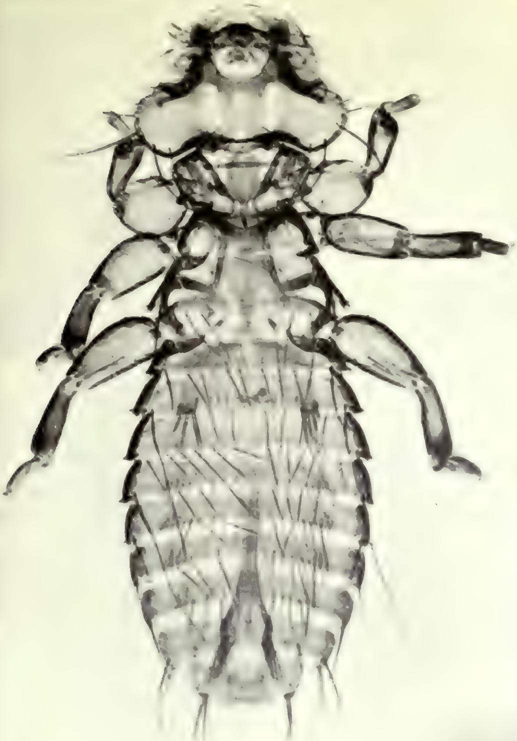
PLATE 5

FIG. 1. *Myrsidea cucullaris* (Nitzsch), male neallotype.
FIG. 2. *Myrsidea cucullaris* (Nitzsch, sclerite of genital sac.
FIG. 3. *Philopterus atratus* (Nitzsch), male neotype.
FIG. 4. *Philopterus atratus* (Nitzsch), male genitalia.
FIG. 5. *Philopterus atratus* (Nitzsch), female neallotype.



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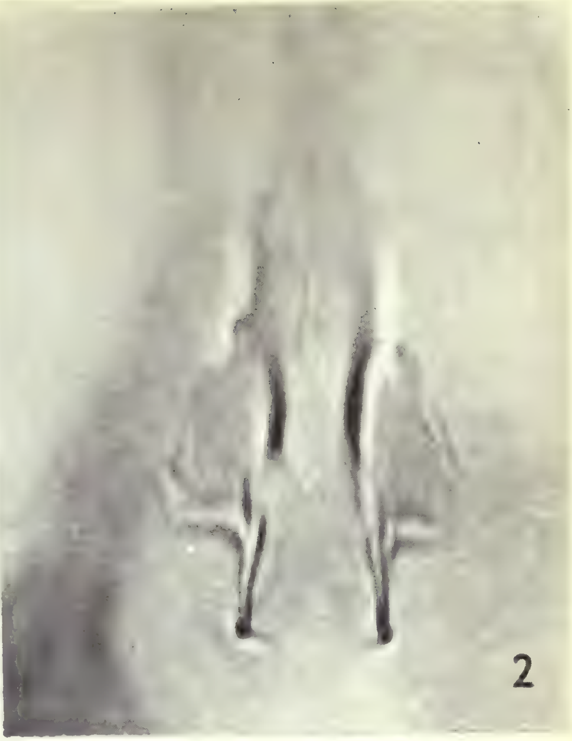

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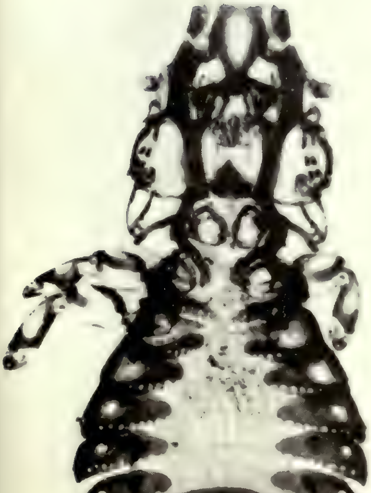

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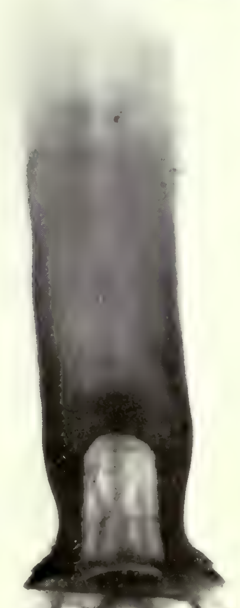

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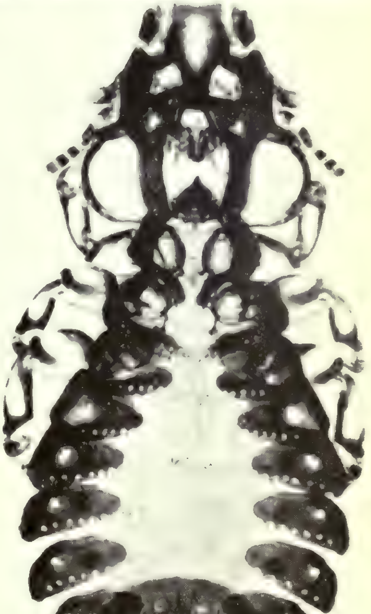

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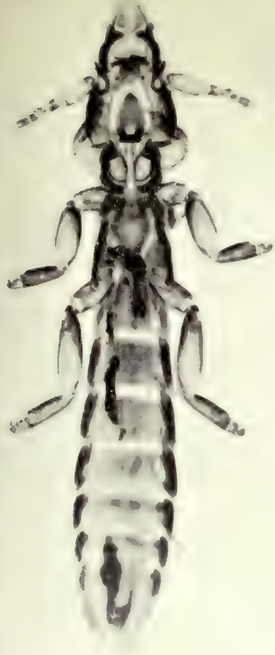
PLATE 6

Fig. 1. *Fulicoffula lurida* (Nitzsch), male neotype.
Fig. 2. *Fulicoffula lurida* (Nitzsch), female neallotype.
Fig. 3. *Ardeicola tantali* (Fabricius), male lectotype.
Fig. 4. *Ardeicola tantali* (Fabricius), female paratype.
Fig. 5. *Laemobothrion* (*E.*) *atrum* Nitzsch, male neotype.
Fig. 6. *Laemobothrion* (*E.*) *atrum* Nitzsch, female.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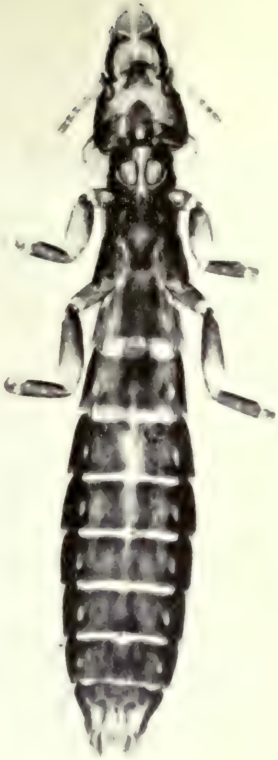
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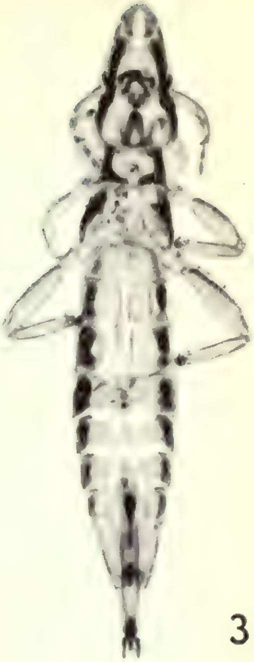
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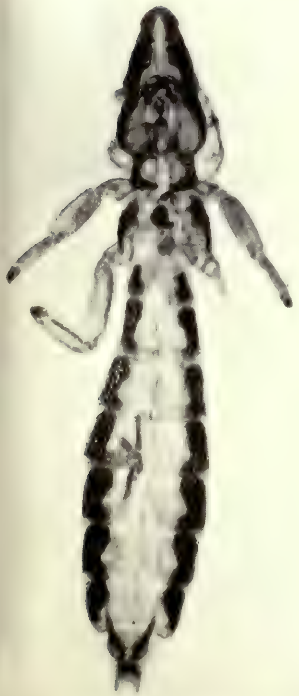
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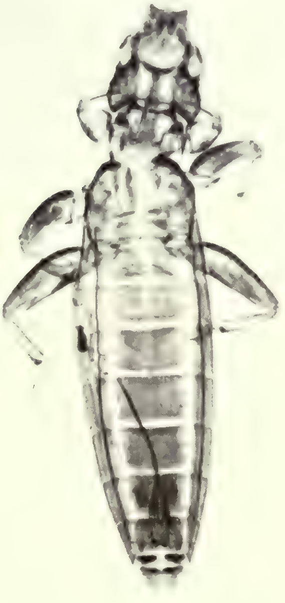
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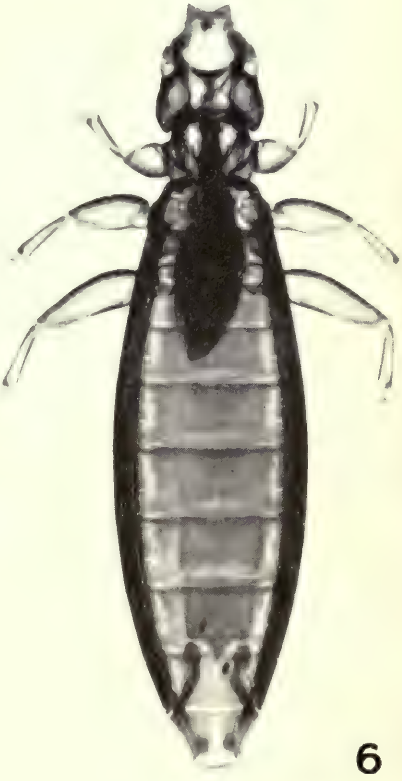
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A REVISION OF THE SPECIES OF *SCHIZONYCHA* DEJEAN (COL.: MELOLONTHIDAE) FROM SOUTHERN AFRICA

R. D. POPE

BRITISH MUSEUM
31 MAY 1960
NATURAL HISTORY

BULLETIN OF
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ENTOMOLOGY Vol. 9 No. 2
LONDON: 1960

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BY

R. D. POPE

Commonwealth Institute of Entomology, London

v. 9.

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Pp. 63–218 ; *Plates* 1–14 ; 253 *Text-figures*

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INTRODUCTION

Schizonycha is one of the largest genera of MELOLONTHIDAE. Over 300 species have been described, of which all but 8 are African and of these about 120 occur south of a line drawn across the continent, following the border between Angola and South-west Africa in the west and continuing eastward along the course of the Zambesi to the mouth of that river. This area, called "southern Africa" in the present work, appears to form a natural faunistic unit, very few species of *Schizonycha* occurring on both sides of the line. In view of this, because of the number of species involved and because of the relative accessibility of type material, a revision of the species of *Schizonycha* of southern Africa was undertaken as a first step toward an investigation of the genus as a whole.

As far as has proved possible in connection with a limited survey, the generic concept has been examined, its history traced, a type species selected and the interrelationships of *Schizonycha* and neighbouring genera investigated.

Although there is very little information to date about the biology of the species, such details as are known have been collected together. It is to be hoped that this work will make specific identification of material more readily possible and in doing so stimulate field investigations.

Prior to the present study, some 98 species of *Schizonycha* had been described from southern Africa and 9 species from the same area had been placed in the genus *Atys* Reiche. In this paper, *Atys* and *Schizonycha* are treated as a single genus and so it may be said that at the beginning of this revision, 107 species of *Schizonycha* had been described from southern Africa.

In the following pages, 19 new species are described, 5 instances of established names being applied inadvertently to new species are noted and new names proposed for them and 22 cases of synonymy are recorded for the first time. The final analysis is that 117 species of *Schizonycha* are now known to occur in southern Africa.

Despite the willing co-operation of the authorities of various museums and institutions, the identities of a few species remain in doubt for lack of reliably named material or other evidence which would allow of certain determination. These few are listed, together with the available evidence as to their identity, on pages 72 to 76. The total of 117 species recorded above includes these species.

HISTORY OF THE GENUS

The first use of the name *Schizonycha* occurs in the 1833–35 edition of the *Catalogue des Coleoptères de la Collection de M. le Comte Dejean*. On page 161 the name is ascribed to Dejean and followed by a list of species, three of which are known to have been validly described prior to 1833.

The 1837 edition of the Dejean Catalogue contains a repetition of the list of species of *Schizonycha* given in the 1833–35 edition and five additional names, all of which are *nomina nuda*.

The next appearance of the name in the literature is in the *Histoires des Insects* (1845) by Blanchard. On page 215 of volume 1 he described a genus *Schizonycha*, attributing the name to Dejean, but did not include any species. This work is generally considered unavailable as a source of names as it is not consistently binomial in its nomenclature, but it may be taken as evidence in support of the view that Dejean should be credited with the authorship of *Schizonycha*.

Erichson (1847, p. 658) included *Schizonycha* Dejean in a key to the genera of the tribe *Melolonthini*. In a footnote on the previous page he made it clear that he had discovered that Dejean had included the species of *Diplotaxis* Kirby (1837) in his list of *Schizonycha* species.

In 1850, the first volume of the *Catalogue de la Collection Entomologique du Museum d'Histoire Naturelle de Paris* by Blanchard appeared containing (p. 149) a diagnosis of *Schizonycha*, a statement that it included *Amphimallon* Castelnau (1837) and a list of 14 included species, 8 of them being described as new. The first reference given under the generic name in 1850 was that of Blanchard 1845. A footnote on the same page acknowledged Dejean as the first to use the name *Schizonycha,* but stated that this first use was in a much wider sense than the interpretation by Blanchard in 1845.

In 1855, Burmeister included *Schizonycha* Dejean in his *Handbuch der Entomologie* (p. 265 ff.), restricting the genus so as to include only species having 10-segmented antennae with a 3-segmented club. He added eleven new species to the genus, nine of them from southern Africa, eight of which are included in the present revision, one of them having been transferred to another genus by Brenske in 1895.

Lacordaire (1856, p. 288) assumed that Erichson had validated Dejean's concept of *Schizonycha* and gave a long description of the genus, following Burmeister in restricting the group to species having 10-segmented antennae with a 3-segmented club. He gave a list of species which consisted of all the species placed in the genus by Blanchard (1850) with the exception of those having a 5-segmented antennal club and with the addition of *Schizonycha ova* Coquerel (1851) from Madagascar.

Boheman (1857, pp. 96–104) added eight species to the genus, all of them from southern Africa. He made no observations concerning the scope or nature of the group.

From 1857 onward, many authors have, at various times, added a large number of species to the genus. Only a few of these authors dealt with species from southern Africa and even fewer gave any treatment of the generic concept.

Kolbe (1894) published a key to the group of genera including *Schizonycha,* separated some species from the genus to found new genera and described a new species of *Atys* Reiche (1850) (see pages 69 to 71) from east Africa.

Brenske (1892, p. 37) commented on Erichson's and Lacordaire's treatment of *Schizonycha.* Three years later (1895, p. 223) he reduced the scope of *Schizonycha* envisaged by Burmeister by removing *S. lurida* Burm. (1855, p. 274) and using it to found a new genus *Glyptoglossa.* In 1898 (pp. 347–378) the same author published a further treatment of the genus, pointing out certain synonymies, particularly of extra-African species, establishing three new genera closely related to *Schizonycha,* providing a table separating the species of *Schizonycha* known to him into groups and describing a number of new species, some of them from southern Africa.

Péringuey (1904, pp. 190–252, 1908, pp. 678–681, 699–702) produced the first, and until the publication of the present paper, the last comprehensive revision of the genus as it occurs in southern Africa. Following a lengthy description of the genus, he provided a key for specific identification, described or redescribed all the species known to him and published illustrations of the *male* genitalia of a majority of the species. He added 62 new species to *Schizonycha* and 9 to *Atys* Reiche. Almost all these species are accepted as valid in this paper, their number being increased where it has been found that Péringuey described a new species under the impression that he was redescribing an already known taxon.

Subsequent to 1908, Kolbe (1910) added a few east African species to the genus and Moser (1914–24) described many new species of *Schizonycha,* 5 of them from southern Africa.

Peyerimhoff (1935, pp. 147–150) revised the north African species of *Schizonycha*, following the suggestion made by Brenske (1896, p. 355) that *Atys* as interpreted by Kolbe (1894, p. 568, 577) should be regarded as a part of *Schizonycha*.

Gridelli (1939, pp. 470–521) published a revision of the species of *Schizonycha* from south Abyssinia, describing some new ones, providing a key for specific identification and also regarding Kolbe's conception of *Atys* as coming within the limits of *Schizonycha*.

Arrow (1944) revised the Asiatic representatives of the genus, providing a key for the identification of the species and describing two new ones.

The last worker to publish any revisionary exposition of the genus was Burgeon (1946) who wrote up the species occurring in Belgian Congo. He described some new species, gave a key to the genera surrounding *Schizonycha* and a key for the indentification of the species, separating them into groups after the manner of Brenske (1898). Burgeon's conception of *Schizonycha* was broader than that of Péringuey in that he included *Atys* Reiche and *Etischiza* Brenske as subgenera.

SELECTION OF THE TYPE SPECIES OF THE GENUS

Only three of the many species listed by Dejean in 1833 as belonging to his genus *Schizonycha* had at that time been validly described. One of these, *S. globator* (F.) (p. 141), has been included within the confines of the genus from its erection until the present time. The second, *S. henningii* (Fischer), was transferred to another genus (*Lasiopsis* Blanch. (*nec* Erichson) = *Lachnota* Reitter) by Blanchard in 1850. The third, *S. cylindrica* (Gyll. in Schönherr), was transferred to *Brahmina* Blanch. by Brenske in 1892.

It follows that, in order to preserve the present interpretation of *Schizonycha* Dejean, it would be necessary to select as the type species of the genus the first of the three species referred to above.

In 1944, Arrow suggested that *Melolontha ruficollis* Fabricius, first placed in *Schizonycha* by Blanchard (1850) might be regarded as the type species of the genus. Arrow accepted Blanchard as the author of *Schizonycha* and so regarded *S. ruficollis* (F.) as an originally included species.

As is now known, Dejean (1833) was the first to apply the name *Schizonycha* to a generic concept. He did not include *Melolontha ruficollis* F. as a species of *Schizonycha*. Therefore that species is not available for selection as the type species of *Schizonycha* Dejean. Blanchard (1850), when describing *Schizonycha* referred to his earlier (1845) diagnosis of the genus and, in a footnote, made it plain that he knew of Dejean's use of the name and stated that he proposed to apply it to a more restricted group than that indicated by the earlier author. Like Dejean, he included *Scarabaeus globator* F. in *Schizonycha*.

In view of the evidence now available, Arrow's suggestion that *S. ruficollis* (F.) might be regarded as the type species of *Schizonycha* must be rejected as an invald selection and I hereby select *Scarabaeus globator* Fabricius (1781) as the type species of *Schizonycha* Dejean (1833).

DIAGNOSIS OF THE GENUS

MELOLONTHINI with the anterior border of the labrum more or less horizontally emarginate; with the clypeus having a weakly or strongly raised transverse carina shortly in front of frontoclypeal suture (Text-figs. 21–24); with the antennae (Text-figs. 1–5) having a 3-segmented club in both sexes, a long scape, a globose second segment and a funicle composed originally of five segments although these may be more or less fused together so that it appears to be composed of from two to five segments; with the mentum (Text-fig. 6 *m*) at most shallowly concave, usually flat or slightly convex, sometimes with a shallow longitudinal median ridge; with the labium not strongly raised on each side of a median excavation; with the pronotum convex and without a broad anteromedian excavation and without a pair of paramedian anterior tubercles; elytra without striae or ridges, confusedly but usually more or less evenly punctured, usually short enough to leave at least part of the propygidium exposed; metasternum raised into a blunt longitudinal carina on either side near its junction with the metepisterna, carinae more strongly developed toward anterior angles of metasternum; abdomen with five ventrites rounded laterally, without pleural ridges; anterior tibiae with one or two external teeth in addition to the apical tooth (Text-figs. 41 and 42); tarsal claws with a basal inferior lobe and either bifid at the apex or with an inferior median tooth (Text-figs. 10–15).

The diagnosis of *Schizonycha* set out above is such as to give the genus a rather wider scope than was attributed to it by Péringuey. It is in effect a definition of the genus as it was interpreted by Burgeon (1946) and so includes *Atys* Reiche (1850, p. 352) (*nec* de Montfort, 1810) and *Etischiza* Brenske (1898, p. 379). *Atys* Reiche was treated as a separate genus by Péringuey (1904, p. 252) and by Andreae (1933), but was reduced to a subgenus of *Schizonycha* by Burgeon (1946, p. 230). In the present paper it is regarded as a pure synonym of *Schizonycha* Dejean.

Reiche erected *Atys* to contain a single species, *A. samenensis* Reiche from Abyssinia, which he stated to have 7-segmented antennae. This was the only character mentioned by him which distinguished his genus from *Schizonycha* and he remarked that he believed it possible that the antennae were in fact 10-segmented, segments 3, 4, 5 and 6 being more or less completely fused.

Lacordaire (1856, p. 289) gave a long description of Reiche's genus, referring to it as a doubtfully separate group from *Schizonycha*. He very properly pointed out that the uncertainty shown by Reiche over the number of segments in the antennae of his species could only be resolved by examination of a large number of specimens and that it might well be that the result would be a rejection of *Atys* as a separate genus.

Quedenfelt (1884, p. 315) described *Atys diluta* from east Africa. He remarked that although he had seen a long series of specimens they were all *males* and also recorded the antennae as possessing nine segments. He stated that, apart from the number of segments in the antennae, *Atys diluta* was indistinguishable from a species of *Schizonycha*.

Kolbe (1894, p. 568) assumed in his key to the genera surrounding *Schizonycha* that *Atys* had 9-segmented antennae and later in the same paper (p. 577) described

A. glabra from east Africa, referring to it as being very similar to *A. diluta* Qued.

Brenske (1896, p. 355) remarked in a footnote that *Atys samenensis* Reiche was reputed to have 7-segmented antennae and suggested that Kolbe's and Quedenfelt's species did not belong to *Atys*, but should be assigned to a subgenus of *Schizonycha*.

Péringuey (1904, p. 252–259) added several more species to *Atys* Reiche and stated that the sole character distinguishing the genus from *Schizonycha* was the 9-segmented antennae of the *males*.

More recently, Andreae (1933) revised the species placed in *Atys* Reiche by Péringuey, adding one from *Schizonycha* (*S. corrosa* Burm., p. 203). Andreae accepted *Atys* as a valid genus, but Burgeon (1946, p. 230), recording Brenske's remarks of 1896, treated *Atys* as a subgenus of *Schizonycha*, isolated within the main genus by its 9-segmented antennae and by its almost glabrous underside. In the same paper, he described *Schizonycha urundiensis* (p. 241) in which he stated the antennae to be variable, having either 9 or 10 segments, but which had pubescence on the underside and an abdominal formation which forced him to assign it to *Schizonycha* s. str. and not to the subgenus *Atys*.

The type specimen of *Atys samenensis* is deposited in the British Museum (Nat. Hist.). It is a *male* and has an antenna broken off at the articulation between segments 2 and 3, the separated part being mounted on a card. It is clear that the specimen has antennae made up of a trilamellate club preceded by a small cupuliform segment, the latter being connected to the globose second segment by a tube made up of the fused segments 3 to 6 as described by Reiche. What Reiche apparently did not see is that there is a distinct transverse suture less than half-way from the proximal end of the tube, presumably the remains of the articulation between segments 3 and 4. Three other examples of this species in the British Museum have this articulation much better defined and so it may be said that the species is really one with 8-segmented antennae but which shows a tendency to have their number reduced to 7.

Examination of a series of *Atys fallax* Pér. (p. 117) consisting of between 40 and 50 specimens of both sexes showed at least two examples with 8-segmented antennae instead of the usual 9 and a single example in which one antenna had 9 segments while the other possessed only 8.

Schizonycha urundiensis Burgeon has already been referred to as having antennae of either 9 or 10 segments. A similar state of affairs exists in the case of *Atys hypocrita* Pér. (p. 170). Here Péringuey was sufficiently confused by it to describe the species twice, once as above and once as a species of *Schizonycha*.

All this seems to indicate that the reduction of the number of antennal segments is not so fundamental a character as was thought. If there had been variation in the number of lamellae in the club the picture would have been quite different, but the degree of articulation of the funicle is a relatively unimportant matter. Doubt is thus also cast on the validity of *Atys*, either as a genus or a subgenus. In support of this doubt, an examination of all the species placed in *Atys*, together with other material, both named and unnamed, from other parts of the continent, shows the group to be heterogeneous, the species being related individually or in small groups to various distinct, but undoubted species of *Schizonycha*.

In view of this and despite the fact that I have not yet examined every species of *Schizonycha,* I have no hesitation in electing to treat *Atys* Reiche as a synonym of *Schizonycha* Dej.

Embrik Strand (1942, p. 391) first noticed the prior use of the name *Atys* by de Montfort (1810 for a genus of Mollusca) and proposed *Atysilla* as a substitute. This name also becomes a synonym of *Schizonycha.*

Arrow (1944*a*, p. 634) remarked upon the unavailability of *Atys* Reiche as a generic name in coleoptera, noting at the same time that *Genyoschiza* Moser (1917*a*, p. 84) appeared from its description to be a possible synonym of Reiche's genus. He suggested that *Genyoschiza* should be provisionally adopted as a substitute name.

Whether or not *Genyoschiza* is synonymous with *Atys* Reiche, no change would be necessitated in the nomenclature used in this paper. The genus was erected for a species from east Africa, and it is treated here as a possible synonym of *Atys* and hence of *Schizonycha.*

Also in his 1946 paper, Burgeon reduced *Etischiza* Brenske (1898, p. 379) to a subgenus of *Schizonycha.* Brenske founded his genus on *Schizonycha heudelotii* Blanchard (1850, p. 150), synonymizing it with *Schizonycha incerta* Burm. (1855, p. 273). Both names were used to describe material from Senegal and although both the validity of the subgenus and the correctness of the synonymy are doubtful, the problem must remain until a revision of the west African species of *Schizonycha* is accomplished.

The synonymy of *Schizonycha* as it stands at present may therefore be summarized as follows :

Schizonycha Dejean, 1833.
  Atys Reiche, 1850 (*nec* de Montfort, 1810).
  Atysilla Strand, 1942, nom. nov. pro *Atys* Reiche.
  ? *Genyoschiza* Moser, 1917.
subgen. *Etischiza* Brenske, 1898.

TAXONOMIC POSITION AND RELATIONSHIPS

Schizonycha belongs to that group of the Melolonthini in which the tarsal claws are split apically as well as being equipped with an inferior basal lobe, in which the metepisterna are narrow and more or less acuminate toward their apices and in which the head frequently possesses one or more transverse carinae.

The genus is large and rather diverse and it is possible to see some of the trends within it which may be said to lead outward toward the other genera in the group. All these other genera at present form much smaller groups of species than does *Schizonycha.* Whether any one of them may be considered as ancestral to *Schizonycha* or whether they are all derivative is unanswerable from the evidence obtainable from a partial revision of the genus, but as indicated above, some of their interrelationships may be traced.

For example, such species as *Schizonycha confinis* Pér (p. 113) and to a greater extent *S. frontalis* Moser (p. 111) are closely related to the species of Kolbe's genus *Hecistopsilus* (1894).

A new species is described later in this paper which shows how *Syngeneschiza* Brenske (1898) with its strongly concave mentum and much produced lateral labial areas may have been derived.

Spathoschiza Arrow (1902) is a curious monobasic genus in which the tarsal claws are trifid and possess a basal lobe as well. Apart from this feature and the strongly produced clypeus with its sharp anterior angles, *Spathoschiza* seems to have a very definite affinity with *S. divulsa* Pér. (p. 106) and *S. inops* Pér. (p. 108).

Homoeoschiza Kolbe (1894), synonymized with *Euryschiza* Brenske (1898) by Moser (*Dtsch. ent. Z.*, 1914, p. 275), has no transverse clypeal carina, but in other respects is strongly reminiscent of *S. debilis* Burm. (p. 120).

Lastly, two other genera closely related to *Schizonycha* are *Entyposis* Kolbe (1894) and *Trichoschiza* Moser (1917), a genus erected for an Abyssinian species. The former is very similar to typical *Schizonycha* species, but is at once segregated by the hollowed out pronotum and the two anteromedian pronotal tubercles typical of the *males* of *Entyposis*. The second genus, as its name implies, is characterized by long, outstanding setae. These more or less cover the whole of the pronotal surface. *S. dissensa* Pér. (p. 128) and *S. crinita* Brenske (p. 127) both show a tendency toward this state of affairs in that they have a transverse row of long, outstanding setae along the posterior margin of the pronotum.

SPECIES FROM SOUTHERN AFRICA ORIGINALLY DESCRIBED AS SCHIZONYCHA BUT SUBSEQUENTLY TRANSFERRED TO OTHER GENERA

Apogonia curtula (Pér.)

Schizonycha curtula Péringuey, 1892, p. 2.
Apogonia curtula (Pér.), Péringuey, 1904, p. 291.

Glyptoglossa lurida (Burm.)

Schizonycha lurida Burmeister, 1855, p. 274.
Glyptoglossa lurida (Burm.), Brenske, 1895, p. 223.

Entyposis simplex (Pér.)

Schizonycha simplex Péringuey, 1904, p. 258.
Entyposis simplex (Pér.), Andreae, 1933, p. 107.

SPECIES INCERTAE SEDIS

Among the many species of *Schizonycha* described from southern Africa, a very few are known from their descriptions alone. The original material on which the species was based has either been lost or is no longer identifiable. The species falling into this category are set out below. The original author's description is repeated together with any subsequent author's interpretation as far as can be ascertained and the results of my own attempts to establish the identity of these species are recorded.

S. oblonga Boh.

Schizonycha oblonga Boheman, 1857, p. 102.
Schizonycha oblonga Boh., Péringuey, 1904, p. 233 (erratum).

Original description : " Oblonga, convexa, flavotestacea, subnitida ; capite crebre rugoso-punctato et prothorace parum profunde, minus crebre punctato, antice granulato, saturatioribus ; scutello utrinque punctato ; elytris sat crebre, mediocriter, vage, pygidio rarius punctatis ; geniculis leviter infuscatis.—Long. 9½–12, lat. 5¼–6¼ millim."

Habitat in Caffraria tota.

Schiz. russulae angustior, minus convexa. Caput latitudine brevius, superne fere planum, rufo-testaceum, sub-nitidum, sat profunde rugosopunctatum. Clypeus reflexo-marginatus, apice rotundatus, carina transversa, medio antrorsum nonnihil arcuata, parum altiore, a fronte distinctus. Oculi rotundati, convexi, nigri. Antennae flavo-testaceae. Prothorax latitudine multo brevior, antice leviter rotundato emarginatus, angulis obtusis ; lateribus tenuiter reflexo-marginatis, ultra medium oblique ampliatis, dein rotundatis ; postice utrinque vix sinuatus, angulis obtusis ; superne convexus, rufo-testaceus, nitidus, parum profunde, sat crebre punctatus, antice subtiliter granulatus, intra basin utrinque transversim impressus. Scutellum breviter triangulare, flavo-testaceum, nitidum, untrinque punctatum. Elytra prothorace non latiora et illo duplo et dimidio longiora, antice subtruncata, humeris parum elevatis, obtusis ; lateribus pone medium parum ampliata, apice conjunctim late rotundata, superne convexa, flavo-testacea, sub-nitida, mediocriter, sat crebre, vage punctata. Corpus subtus flavo-testaceum, nitidum. Pectus subtiliter, crebre punctulatum, parce cinereo-pubescens. Abdomen rarius punctulatum, fere glabrum. Pedes rufo-testacei, punctati, geniculis leviter infuscatis ; femoribus antice medio laevigatis ; tibiis anticis extus obtuse tridentatis, tarsorum artulis apice infuscatis. BHN."

Péringuey synonymized *S. affinis* Boh. and *S. oblonga* Boh., basing his opinion upon material from the Boheman collection. As is shown later (p. 206), the Boheman collection contains a mixed series over the name *S. affinis* and Péringuey unfortunately based his interpretation of the species on a specimen which cannot have belonged to the original type series. The specimen that he regarded as a " co-type " of *S. oblonga* must also have belonged to the species known to him as *S. affinis*. These specimens do not agree with the description of *S. affinis* given by Boheman, neither do they agree with his description of *S. oblonga*. In fact Péringuey described a new species under the impression that he was redescribing *S. affinis* Boh.

As far as can be ascertained there is no material over the name *S. oblonga* in the Boheman collection at the present time and it is not possible to interpret the species with any accuracy. All that can be said is that it should be very similar to the true *S. affinis* Boh. (p. 206), but should have the anterior border of the clypeus semicircular, the pronotum and pygidium less deeply and less closely punctured and it is very probable that the pronotum does not have a longitudinal median impunctate space.

S. comosa Burm.

Schizonycha comosa Burmeister, 1855, p. 270.

Original description : "Oblongo-ovata, castanea, pernitida, dense subtilius punctata ; pectore pedibusque pilis longis hirsutis. Long. 5″ ♂.

" Von der Weihnachtsbai (Bay of Natal) ; Hrn. Germar's Sammlung.—Nicht kürzer aber viel schmäler gebaut, nach hinten etwas breiter, gelbroth, sehr glänzend, viel feiner punktirt ; das Kopfschild ebenso gestaltet, die Mitte des Randes erhaben, durch einen schwachen Kiel mit der Stirnkante verbunden. Seiten des Vorderrückens etwas erweitert, sehr dicht punktirt, die Kopfecken etwas schärfer, der Rand fein gekerbt. Afterdecke ziemlich dicht grob punktirt ; Brust, Schenkel und Innenseite der Schienen mit langen, rothgelben Haaren dicht bekleidet ; Füsse ziemlich lang Fühlerfächer klein, hellgelb.—"

In a note following the description, Burmeister offered the opinion that the *S. comosa* might in fact be the *male* of *S. corrosa* Burm. He said that if *S. comosa* and *S. corrosa* were in fact the two sexes of a single species, they would be an example of marked sexual dimorphism unknown to him in the genus and so he elected to regard them as separate species. As is now known, marked sexual dimorphism is a feature of some species of *Schizonycha* (e.g. *S. debilis* Burm. (p. 120), *S. ovatula* Brenske (p. 211) and *S. filiola* Moser (p. 200)), but the description of *S. comosa* given by Burmeister does not agree with what is now known to be the *male* of *S. corrosa* Burm. (p. 203).

Péringuey (1904, p. 206) described a new species under the impression that he was redescribing *S. comosa* Burm. This mistake is dealt with on page 148 of the present paper.

Of all the species of *Schizonycha* described from southern Africa, the one which appears to agree most closely with the description of *S. comosa* is *S. gonaqua* Pér. (p. 139). Even this does not agree entirely and so for the present, *S. comosa* Burm. must be left as a species of doubtful identity.

(?) ***S. tumida*** (Cast.)

Rhizotrogus tumidus Castelnau, 1840, p. 133.

For :— *Schizonycha tumida* Blanchard (*nec.* Cast.), 1850, p. 150 ; *Schizonycha tumida* Burmeister (*nec* Cast.), 1855, p. 267 ; *Schizonycha tumida* Péringuey (*nec.* Cast.), 1905, p. 225 — see p. 126.

Length 14·8 mm. Breadth 6·7 mm.

Original description : " Illig.—Long. 6 lig. ½. Larg. 3 lig.—D'un brun-rouge ; tête, corselet et élytres couverts de gros points enfoncés irréguliers ; poitrine et pattes velues.—Cap de Bonne-Espérance."

Castelnau named the species he described as *Rhizotrogus tumidus* and attributed the name to Illiger. No melolonthid with the specific name *tumidus* had been described by Illiger prior to 1840, but the name had appeared in the 1833 and 1837 editions of the Dejean Catalogue under the genus *Schizonycha* (a genus not recognized by Castelnau). Also specimens labelled as *Schizonycha tumida* and *Melolontha tumida*, some of them dating back to at least 1840, are to be found in the collections of the Zoologisches Museum, Berlin. Therefore Castelnau was the author of the species, although he was in all probability validating a name which was in current use among entomologists of his day.

Castelnau did not mention the location of material and so it has to be assumed that he based his description upon specimens in his own collection. The lamellicornia of his collection are now in the Oberthür collection in Paris and they include five specimens over the name " *Schizonycha tumida* Castelnau ". Of these, four do not agree with the original description of the species, three of them being examples of *S. livida* Klug (p. 153) and one an example of *S. salaama* Brske. (p. 155). The fifth specimen agrees more closely with Castelnau's description, but is not of a south African species. It is a *female* example of a species occurring in east Africa and as yet undetermined. Thus it would seem that, if Castelnau did describe *tumida* from material in his own collection, none of it remains there today.

The description is too vague to define a single species and so it is not possible to identify *tumida* with certainty in the absence of material from the original series. Such evidence as is obtainable from later authors' interpretations of the species is interesting in that it all points toward *tumida* being synonymous with *S. fartula* Pér. (p. 126). Unfortunately this cannot be taken as proof of identity as the agreement might just as well stem from an original error as from an original knowledge of Castelnau's species.

The present position is that *tumida* Cast. is a species of doubtful identity and later interpretations of that species—which may or may not be correct—are all synonymous with *S. fartula* Pér. (p. 126). These later interpretations are dealt with in the present paper under the latter name (see above).

The acceptance of Castelnau's species in *Schizonycha* relies upon the later interpretations of *tumida* and so it is arguable that the true *tumida* Cast. may not be a member of that genus at all. On the other hand it is very much less likely to belong to *Rhizotrogus* Latreille which is almost entirely palaearctic in distribution. Failing further evidence as to its identity, it seems preferable to leave *tumida* as a *species inquirendae*, provisionally assigned to *Schizonycha*.

S. consobrina Klug

Schizonycha consobrina Klug, 1855, p. 658.
Schizonycha consobrina Klug, 1862, p. 257.

Length 14 mm.

Original description : " . . . subcylindrica, confertim punctata, fusco-brunnea, subtus fulvo-pilosa, clypeo emarginato. Lange 6½ Linien. Von Tette."

The 1862 reference to the species noted that it was founded on a single female example and added the following details to the original latin diagnosis : " Etwas grösser wie die vorhergehende Art, auch verhältnissmässig breiter, sonst ihr sehr ähnlich. Dunkelbraun bis auf die etwas heller gefärbten Deckschilde. Überall mit

eingedrückten Punkten bedeckt, in welchen jedoch Härchen oder Schüppchen nicht zu bemerken sind. Das aufgeworfene Kopfschild an der Spitze ausgerandet. Die Stirnleiste wenig erhöhet, zu den Seiten fast erloschen. Die Fühlerkeule rothgelb. Die Seiten des Halschildes und der Deckschilde röthlich gewimpert. Die untere Seite nebst den Schenkeln roth behaart. Die Schienen, wie bei den vorigen Arten, dunkler, fast schwarz."

The " previous species " referred to in the above description is S. *livida* Klug (p. 153). Dr. Delkeskamp has very kindly searched the collections of the Zoologisches Museum, Berlin, on my behalf, but has been unable to find the specimen on which Klug erected this species.

When an interpretation of S. *consobrina* is attempted, a difficulty arises which is reminiscent of the case of S. *unicolor* (Herbst) (p. 129). The elytra were described as being very pale compared with the rest of the body and the legs are referred to as almost black. This suggests very strongly that the specimen may not have been fully coloured. The lack of pronotal and elytral setae mentioned in the description may well indicate a species with minute setae, unobserved by Klug. The final picture is so vague that it is not possible to attach the name to any known species of *Schizonycha* and so it must be left as a doubtful species until further information as to its identity may be available.

DISTRIBUTION

The following table illustrates the known distribution of the species treated in this work. In a few cases the region within southern Africa is not known. Here the record is simply " S. Afr." and is marked in the " Other Regions " column. The restricted distribution and patchy occurrence of some species may well be an illusion arising from lack of material, but it is felt that the regional lists may nonetheless be of value where the establishment of new records is concerned.

It is interesting that only 12 out of a total of 117 species occur both north and south of the Zambesi River.

	Cape Prov.	Natal	Orange F. St.	Bechuanaland	S-W. Africa	Swaziland	S. Rhodesia	Port. E. Afr.	Transvaal	Other regions
abenaba sp. n.	..	..	..	..	+	..	..	+	..	—
abrupta sp. n.	+	..	..	..	..	..	..	..	..	—
abscondita sp. n.	..	..	..	..	..	..	..	..	+	—
affinis Boh.	?+	+	..	..	..	..	..	..	..	—
algoensis Pér.	..	..	..	..	..	..	..	+	..	—
ambigua Pér.	..	..	..	..	..	..	+	..	+	—
barda Burm.	+	+	..	..	..	..	..	..	..	—
bohemani n.n.	+	..	+	+	..	..	+	..	+	—
boschimana Pér.	+	..	..	..	..	..	..	..	+	—
capensis Burm.	?+	..	..	..	+	..	..	..	..	—
carbonaria Boh.	+	+	..	..	..	..	..	..	..	—

	Cape Prov.	Natal	Orange F. St.	Bechuanaland	S-W. Africa	Swaziland	S. Rhodesia	Port. E. Afr.	Transvaal	Other regions
ciliata Burm.	+	..	..	..	+	..	..	..	..	—
citima Pér.	..	..	+	+	..	..	+	+	+	Nyasaland.
clypealis sp. n.	..	..	..	..	+	..	..	..	..	—
comosa Burm.	..	+	..	..	..	..	..	..	..	—
compacta sp. n.	..	+	..	..	..	..	..	..	..	—
confinis Pér.	..	..	..	..	..	..	+	..	..	—
consobrina Klug	..	..	..	..	..	..	..	+	..	—
constrata Pér.	..	..	..	..	..	..	..	..	+	—
continens Pér.	+	..	..	..	..	..	+	..	+	—
corrosa Burm.	+	..	..	..	..	..	..	..	..	" S. Afr."
crinita Brske.	+	..	..	..	..	..	..	..	..	—
damarina Pér.	..	..	..	..	+	..	..	..	..	—
debilis Burm.	+	..	..	..	..	..	..	..	..	" S. Afr."
deceptor sp. n.	+	..	+	..	..	..	..	..	..	
dilucida Brske.	..	..	..	..	..	..	+	+	..	Nyasaland. Tanganyika T.
disputabilis Pér.	..	..	..	..	+	..	+	..	..	—
dissensa Pér.	+	..	..	..	..	..	..	..	..	—
dissimilis Pér.	..	..	..	+	..	..	..	..	+	—
divulsa Pér.	..	..	..	..	..	..	+	..	+	—
durbana Pér.	..	+	..	..	..	..	..	..	..	—
effeta Pér.	+	..	..	..	..	..	..	..	+	—
elegans Pér.	+	..	..	..	..	..	..	..	+	—
fallax Pér.	..	..	..	..	..	..	+	..	..	—
fartula Pér.	+	+	..	..	..	..	..	..	..	—
fatidica Pér.	+	+	..	..	..	..	..	..	..	—
feirana Pér.	..	..	..	..	..	..	..	..	..	N. Rhodesia.
filiola Moser	..	+	..	..	..	..	..	..	..	—
fimbriata Brske.	+	+	..	..	..	..	..	..	+	" S. Afr. "
fraudigera Pér.	..	..	..	..	..	+	..	..	+	—
frontalis Moser	..	+	..	..	..	..	..	..	..	—
geilenkeuseri Brske.	..	..	..	..	+	..	..	..	+	—
globa sp. n.	..	+	..	..	..	..	..	..	..	—
globator (F.)	+	..	..	..	..	..	..	..	..	" S. Afr."
gonaqua Pér.	+	..	..	..	..	..	..	..	..	—
gonaquoides sp. n.	+	..	..	..	..	..	..	..	..	—
gracilis Brske.	..	..	..	..	..	..	+	..	..	S.E. Belgian Congo, Tanganyika T.
hybrida Pér.	..	..	..	..	..	..	..	..	+	—
ignava Pér.	..	..	..	..	..	..	..	..	+	—
increta Pér.	..	..	..	..	..	..	..	+	..	—
inedita Pér.	..	..	..	..	+	..	..	..	..	—
infarsa Pér.	..	..	..	..	..	..	..	..	+	—
inops Pér.	..	..	..	+	+	..	+	..	..	—
infans Pér.	+	+	..	..	..	..	..	..	+	—
infantilis Pér.	..	+	..	..	..	..	+	..	+	—

	Cape Prov.	Natal	Orange F. St.	Bechuanaland	S-W. Africa	Swaziland	S. Rhodesia	Port. E. Afr.	Transvaal	Other regions
inostralis sp. n.	+	..	..	..	..	..	..	..	..	—
inscita Pér.	..	..	..	..	..	..	..	..	+	—
insuesa Pér.	+	..	..	..	..	..	..	..	..	—
inverta Pér.	..	..	..	..	..	..	..	+	..	Nyasaland.
jordani sp. n.	..	..	..	..	+	..	..	..	..	—
kochi sp. n.	..	..	..	..	..	..	..	..	+	—
languens Pér.	..	..	+	..	..	..	..	..	+	—
laticia n. n.	+	..	..	..	..	..	..	..	..	—
lebidis n. n.	+	..	..	..	..	..	..	..	..	" S. Afr."
livada n. n.	+	+	..	+	+	+	+	+	+	Tanganyika T. Nyasaland.
livida Klug.	..	..	..	+	..	..	+	+	..	—
manicana Pér.	..	..	..	..	..	..	+	..	..	S.E. Belgian Congo.
marginata sp. n.	..	..	..	..	+	..	..	..	..	—
matabelana Pér.	..	..	..	..	..	..	+	..	..	—
mediastina Pér.	+	..	..	..	..	..	..	..	..	" S. Afr."
meracula Pér.	..	..	..	..	+	..	..	..	..	—
mimocontinens sp. n.	+	+	..	..	..	..	..	..	+	—
minima Pér.	..	..	..	..	..	..	..	+	..	—
minor sp. n.	+	..	..	..	+	..	..	..	..	—
natalensis Brske.	..	+	..	..	..	..	..	..	..	—
neglecta Boh.	+	+	..	..	..	..	+	..	+	—
nigricornis Burm.	+	..	..	..	..	..	..	..	..	—
noscitata Pér.	+	..	..	..	..	..	..	..	..	—
oblonga Boh.	..	..	..	..	..	..	..	..	..	" Caffraria tota "
ovampoana Pér.	..	..	..	..	+	..	+	..	..	—
ovatula Brske.	+	+	..	..	..	..	..	..	..	—
parilis Pér.	..	..	..	..	..	..	+	..	+	—
pauperata Pér.	?+	..	..	..	..	..	..	..	+	—
perforata Burm.	+	..	..	..	..	..	..	..	..	—
peringueyi Dalla Torre	+	..	..	..	..	..	..	..	..	—
perplexabilis Pér.	..	..	..	..	..	..	+	..	..	—
piceonigra sp. n.	..	..	..	..	..	..	..	..	+	—
profuga Pér.	..	..	..	..	+	..	+	+	..	Nyasaland.
pseudosquamifera sp. n.	+	..	..	..	..	..	..	..	..	—
puerilis Pér.	+	..	..	+	..	..	..	..	..	—
puncticollis Boh.	..	+	..	+	+	..	..	..	+	—
quaesita Pér.	..	..	..	..	..	..	..	..	+	—
rhodesiana Moser	..	..	..	..	..	..	+	..	..	Tanganyika T. ? N. Rhodesia.
rotunda sp. n.	+	..	..	..	..	..	..	..	..	—
rufina Boh.	+	+	+	+	+	..	..	..	+	—
rugosa Brske.	..	+	..	..	..	..	..	..	+	—
rurigena Brske.	..	+	..	..	..	..	..	..	..	—
russula Boh.	+	+	..	..	..	..	..	..	+	—
saga Pér.	+	..	..	..	..	..	..	..	..	—

	Cape Prov.	Natal.	Orange F. St.	Bechuanaland	S. W. Africa	Swaziland	S. Rhodesia	Port E. Africa	Traansval	Other regions
saginata Pér.	+	..	..	..	..	..	..	..	..	—
salaama Brske.	..	..	..	..	..	..	..	+	..	Tanganyika T.
salisburiana Pér.	..	..	..	..	..	..	+	+	..	N. Rhodesia.
scabiosa Pér.	+	..	..	..	..	..	..	..	..	—
spectabilis Pér.	..	..	..	..	..	..	+	..	..	—
spuria Pér.	..	..	..	..	..	..	..	..	+	—
squamifera Wallengr.	..	+	..	..	+	..	..	..	+	" S Afr."
squamosetosa Moser	..	..	..	..	..	..	+	..	..	" S. Afr."
straminea Pér.	..	..	..	..	+	..	+	..	+	N. Rhodesia, Nyasaland.
transvaalica Pér.	..	..	..	+	+	..	+	..	..	—
tumida (Cast.)	+	..	..	..	..	..	..	..	..	—
unicolor (Herbst.)	+	..	..	..	..	..	..	..	..	—
usambarae Brske.	..	..	..	..	..	..	+	+	+	Tanganyika T., Nyasaland, Zanzibar.
valida Boh.	..	+	?+	..	..	..	+	..	..	—
valvata Brske.	..	..	..	..	..	..	..	..	..	" S. Afr."
villosa Brske.	..	+	..	..	..	..	..	..	..	—
vryburgensis sp. n.	+	..	..	..	..	..	..	..	..	—
windhoekensis sp. n.	..	..	..	..	+	..	..	..	..	—
Total species:	49	27	6	11	21	2	29	14	37	

BIOLOGY AND HABITS

Very little has been written concerning the life histories of these insects. Péringuey made few comments, noting only that the species were crepuscular, or perhaps nocturnal and that two of them, *S. fartula* Pér. (p. 126) and *S. tumida* Cast. (p. 74) occurred commonly in the waste material found outside the galleries of *Hodotermes viator*. He also recorded that these species were to be found at the roots of bushes growing in the termite debris and suggested that it was probable that many more than the two species he named had similar habits.

Some information on *Schizonycha* biology is obtainable from the reports on economic entomology. Insofar as these refer to the species dealt with in this paper, the following facts emerge. Adults of *S. profuga* Pér. (p. 167) have been reported as damaging the fruit and leaves of fruit trees in N. Rhodesia. *S. manicana* Pér. (p. 178) has been credited with damaging apple blossom in S. Rhodesia during November.

Two papers by B. L. Mitchell (1946, *Bull. Minist. Agric.* (*S. Rhod.*) *No.* 1365 and 1946, *Rhod. agric. J.* 43, *No.* 6) refer to the species found in Southern Rhodesia where tobacco plantations have been set up. Here it has been found that the larvae are indigenous in the sand veldt surrounding the tobacco plantations and that the adults fly mainly by night. Mitchell states that full-grown grubs are most numerous during the first three weeks of January and that they pupate at the end of this month. The pupae remain in the soil until some time during the rains (November–April). Then emergence begins, but is stopped during the cold weather from May to July, emergence restarting during August and September. He estimates that a population density of 1,680 larvae per acre is sufficient to cause a loss of 1% of a tobacco crop.

PREDATORS AND PARASITES

As with the life histories, hardly anything has been written about the enemies of *Schizonycha* species. As far as predators are concerned, the only record relating to a species from southern Africa is one in which a specimen of *Bufo regularis* is stated to have eaten 147 specimens of a species of *Schizonycha* in four nights. (Power, J. H., 1931, *S. Afr. J. of Sci.* **28**.)

The only available records of parasites of *Schizonycha* in southern Africa are those given by Jepson (1939, *Rev. Agric.* Maurice, **105**) who gives *Campsomeris felina* Sauss., *C. aureoloides* Bradley and *C. madonensis* du Buy (*Scoliidae*) as infesting a species of *Schizonycha* in Natal.

NOTES ON THE KEY TO SPECIES

The construction of a reliable key to the *Schizonycha* species of southern Africa proved a most difficult task. To a practised eye the species are fairly readily recognizable, but they seldom fall into groups which can be used in a dichotomous key. For almost every pair of extreme variations of any character, a number of intermediates exists. As a result the key contains more conditional clauses than might seem desirable.

It would have been a comparatively easy exercise to make a key to *males* alone as these do seem to be separable into satisfactory groups, but this would have left the *females* to be determined by association or by direct comparison ; an undesirable arrangement, particularly with species showing marked sexual dimorphism. As there are some such species in the fauna of southern Africa, the following key ignores, as far as possible, those characters which are known to be, or which it is thought might prove to be of a secondary sexual nature. This has been done in the hope that, where only one sex of a particular species is known at present, the other will be equally identifiable by means of the key when it is found.

A few species show variation in a character which is normally constant within a species. In cases where such a character has been used in the key, the variable species has been brought out in more than one place in order to avoid losing an otherwise useful means of group separation.

Some of the terms used in the key and in the descriptions accompanying it might be clarified by a word of explanation here.

" Weakly or feebly obtuse " refers to an angle of between 90° and 120° ; " Weakly acute " an angle of 70° to 90° ; " Strongly obtuse " 150° or more ; " Strongly acute " 60° or less.

The general surface of the insects varies from entirely smooth and shining to rough and granulated. The intermediate stages are seen as a fine, more or less irregular network of scratches or impressed lines over the surface, the deepening of these lines producing the granulated effect. This type of microsculpture is referred to throughout the present work as **fine shagreening**, sometimes with the qualification that it is " faint ", i.e. little more than fine scratches on the surface.

ABBREVIATIONS USED IN THE TEXT

Throughout the work, the following abbreviations are used to indicate the location of material upon which any given record is based.

B.M. (N.H.) . .	British Museum (Natural History), London. **N.B.** This abbreviation is only used when a series from one locality is housed partly in the British Museum (Nat. Hist.) and partly elsewhere. If a record is based on material from the British Museum alone, no locating abbreviation is given.
B.S.S. . . .	Zoologische Sammlung des Bayerischen Staates, Munich.
Div. Ent. . . .	Division of Entomology, Pretoria.
D.A.S.R. . . .	Department of Agriculture, S. Rhodesia.
F.	G. Frey Museum, Tutzing b. Munich.
N.H.R.M. . . .	Naturhistoriska Riksmuseum, Stockholm.
S.A.M. . . .	South African Museum, Capetown.
Univ. Halle . .	Martin Luther University at Halle.
Z.M.B. . . .	Zoologisches Museum, Humboldt-Universität zu Berlin.
Zoologiska Inst. Lund.	Lunds Universitets Zoologiska Institution, Lund.

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KEY TO SPECIES

1 Hind pronotal angles obsolete (Text-fig. 36); head with a transverse carina across vertex, usually well-marked . . . . (2)

— Hind pronotal angles sharp or briefly rounded, rectangular or obtuse (Text-figs. 30, 37, 33); base of head with or without a transverse carina . . (15)

2 (1) Black or pitchy; posterior margin of pronotum without a distinct raised hind border in front of scutellum; anterior pronotal border evenly emarginate or very slightly sinuate toward anterior angles. (Labral emargination strongly obtuse; upper ramus of all tarsal claws much longer than lower.) . . (3)

— Testaceous to castaneous; posterior pronotal margin with a well-marked raised hind border in front of scutellum (except in *S. ignava* Pér. and *S. puerilis* Pér.); anterior pronotal border sinuate toward anterior angles, usually strongly so, anterior border and anterior border of hypomeron usually continuing in a straight line when viewed from side (Text-fig. 36) . (4)

3 (2) Broader species (13 × 8 mm.); lateral borders of elytra bearing bunches of short, stiff setae from level of hind coxae to apical borders; anterior face of clypeus without a median gap in its row of setiferous punctures; punctures of pronotal disc scabrose . . . . . . ***saginata*** Pér. (p. 96)

— Narrower species (12·5 × 6 mm.); lateral borders of elytra each with a single row of outstanding setae from bases to apical borders; anterior face of clypeus with a median gap in its row of setiferous punctures; punctures of pronotal disc annulate . . . . ***durbana*** Pér. (p. 97)

4 (2) Anterior face of clypeus with a broad median gap in its row of setiferous punctures; labral emargination strongly acute (Text-fig. 16) . ***inedita*** Pér. (p. 98)

— Anterior face of clypeus without, or with a very narrow median gap in its row of setiferous punctures; labral emargination rightangled or obtuse . . (5)

5 (4) Labral emargination almost rightangled (Text-fig. 17) . . . . . . (6)

— Labral emargination strongly obtuse (Text-fig. 19) . . . . . . (9)

6 (5) Clypeal carina feebly arcuate; larger species (13–15 mm. long); basal hind tarsal segment as long as second . . . . . . ***feirana*** Pér. (p. 99)

— Clypeal carina biarcuate (Text-fig. 23); smaller species (*c.* 10–11 mm. long); basal hind tarsal segment shorter than second . . . . . . (7)

7 (6) Metasternum, episterna and hind coxae set with long and short, non-squamiform setae; pronotum with faint traces of micro-sculpture between coarse punctures and with distinct micropunctures . . . ***transvaalica*** Pér. (p. 100)

— Metasternum, episterna and hind coxae with large, squamiform setae as well as fine, non-squamiform hairs; pronotum with fine, but distinct micro-sculpture between coarse punctures, but without micropunctures . . (8)

8 (7) Lateral borders of elytra with stiff, outstanding setae from bases almost to apical borders; scutellum punctate medially as well as laterally; pygidium not abruptly incurved shortly before apex, more or less evenly convex in profile ***ambigua*** Pér. (p. 101)

— Lateral elytral borders with stiff, outstanding setae from bases to level of hind coxae, setae behind this point minute; pygidium much more strongly curved near apex than elsewhere, not evenly convex in profile (Text-fig. 51) ***languens*** Pér. (p. 101)

9 (5) Anterior pronotal border sinuate laterally, but not or scarcely sloping obliquely backward to anterior angles, anterior border and that of hypomeron not continuing in a straight line when viewed from the side (Text-fig. 35); hind pronotal margin without a raised hind border in front of scutellum . . (10)

— Anterior pronotal border strongly sinuate laterally, anterior border and that of hypomeron continuing more or less in a straight line when viewed from one side (Text-fig. 36); hind margin of pronotum with a raised posterior border in front of scutellum . . . . (11)

10 (9) Frontoclypeal suture biarcuate ; vertex of head with a well-marked transverse carina ; setae on upper surfaces clearly visible ; *males* with upper ramus of tarsal claws shorter and finer than lower . . . **ignava** Pér. (p. 102)

—— Frontoclypeal suture not biarcuate ; vertex with a feebly-marked transverse carina ; setae on upper surfaces minute, inconspicuous ; both sexes with upper ramus of all tarsal claws much longer than lower . **puerilis** Pér. (p. 134)

11 (9) Impressed median area of prosternum setiferous (Text-fig. 6P) ; *males* with upper ramus of anterior tarsal claws shorter and finer than lower . . . (12)

—— Impressed median area of prosternum glabrous ; *males* with upper ramus of anterior tarsal claws as broad as and longer than lower . . . . . (13)

12 (11) Lateral borders of elytra with outstanding setae confined to between bases and level of hind coxae ; metasternal episterna with conspicuous, white, squamiform setae as well as non-squamiform hairs ; *females* with pygidium strongly incurved for apical fourth (Text-fig. 51). . . **languens** Pér. (p. 101)

—— Lateral elytral borders with outstanding setae from bases almost to apical borders ; metasternal episterna with all setae fine and non-squamiform ; *females* with pygidium feebly convex and with an elongate impression on either side near apex, *males* with pygidium similar to that of *female S. languens* **bohemani** n. n. (p. 103)

13 (11) Scutellum punctate medially as well as laterally ; pygidium in profile more strongly curved near apex than elsewhere ; clypeal carina very feebly raised **infantilis** Pér. (p. 104)

—— Scutellum punctate laterally only ; pygidium in profile evenly, sometimes shallowly convex ; clypeal carina more strongly raised . . . . . (14)

14 (13) Intervals between coarse pronotal punctures set with micropunctures separated by from six to ten diameters ; elytra with similar micropunctures between coarse punctation . . . . **disputabilis** Pér. (p. 105)

—— Intervals between coarse pronotal punctures with fine shagreening, but without or with a very few, scattered micropunctures ; elytra without noticeable micropunctures . . . . **parilis** Pér. (p. 105)

15 (1) Hind pronotal margin with a raised posterior border which is uninterrupted between hind angles ; anterior tibiae bidentate externally or with third (basal) tooth very feebly indicated (Text-figs. 41 and 42) ; metepisterna bearing squamiform setae distinctly larger than those of elytra ; *males* with upper ramus of at least the anterior tarsal claws shorter and finer than lower (16)

—— Without the above characters in combination . . . . (22)

16 (15) Prosternum in front of anterior coxae without setae near its junction with hypomera ; vertex of head with a fine transverse carina which is without a row of setae immediately behind it ; anterior face of clypeus reflexed medially in some examples, but not vertically convex ; *males* with length ratio of the two apical spurs of the hind tibiae more than 2 : 1 (Text-fig. 49) ; mentum without setae in pits along its basal border . . . . (17)

—— Prosternum with setae in punctures on either side in front of anterior coxae near junction with hypomera ; vertex either with a roughly and irregularly raised transverse carina or, if with a clearly defined carina then with a row of setae arising from immediately behind it ; mentum with two long setae arising from pits along its basal border (Text-fig. 6M) . . . . . (19)

17 (16) Impressed area of prosternum between paramedian carinae glabrous ; pygidial setae much longer on apical third of pygidium than elsewhere . . . (18)

—— Impressed median area of prosternum pubescent (Text-fig. 6P) ; pygidial setae more or less uniform in length . . . . . . **divulsa** Pér. (p. 106)

18 (17) Intervals between pronotal punctures smooth ; upper ramus of all tarsal claws shorter and finer than lower in both sexes ; basal external tooth of anterior tibiae almost completely obliterated, indicated by a slight, obtuse prominence **squamosetosa** Moser (p. 107)

—— Intervals between coarse pronotal punctures with fine, but distinct shagreened microsculpture ; upper ramus of all tarsal claws shorter and finer than lower in *males*, at least as long as lower in *females* ; anterior tibiae with a small, but distinct basal tooth.

[Because of this last character, *S. inops* Pér. appears in two places in the key to species, despite the fact that its affinities are obviously with *S. divulsa* and *S. squamosetosa*] . . . . **inops** Pér. (p. 108)

19 (16) Pronotum with distinct transverse, subbasal, impunctate areas (Text-fig. 32) ; smaller species (up to 12·5 × 6·5 mm.) . . . . (20)

—— Pronotum without transverse, subbasal, impunctate areas ; larger species (13 mm. long or more) . . . . (21)

20 (19) Vertex of head with a clearly marked transverse carina and with a row of white setae arising from immediately behind it ; middle of abdomen devoid of squamiform setae ; anterior tibiae without a trace of a third external tooth ; squamiform setae of underside lanceolate . . . . **increta** Pér. (p. 109)

—— Vertex of head with no more than a vague indication of a transverse carina ; middle of abdomen bearing squamae, although more sparsely clothed than sides ; anterior tibiae usually with a feebly marked third external tooth ; squamiform setae of underside obovate . . . . . **gracilis** Brske. (p. 110)

21 (19) Hind angles of pronotum usually more or less rightangled ; larger species (*c.* 15 × 8 mm.) ; metasternal setae predominantly fine, long, non-squamiform ; scutellum less closely punctate mediobasally than elsewhere ; clypeal carina strongly raised . . . . **frontalis** Moser (p. 111)

—— Hind angles of pronotum obviously obtuse ; smaller species (Ca. 13 × 6·5 mm.) ; scutellum evenly and closely punctured ; clypeal carina very feebly raised **confinis** Pér. (p. 113)

22 (15) Posterior angles of pronotum approximately rightangled (Text-fig. 30) and head narrowed from broadest point (a little in front of frontoclypeal suture) to vertex ; vertex of head always with at least a trace of a transverse carina (23)

—— Posterior angles of pronotum obtuse, or if rightangled by an abrupt sinuation of the lateral borders shortly in front of them (Text-fig. 34), then head not narrowed toward vertex which is with or without a transverse carina . . (32)

23 (22) Black to pitchy ; anterior tibiae bidentate externally with the two teeth unusually approximated (Text-fig. 41) ; punctures of upper surfaces bearing broad, squamiform setae, obvious to the unaided eye . . . . . (24)

—— Testaceous to dark castaneous ; anterior tibiae tridentate externally or, if bidentate then with the two teeth normally separated (Text-fig. 42) ; punctures of upper surfaces set with narrow, squamiform setae or with non-squamiform hairs . . . . (25)

24 (23) Metasternum, episterna, hind coxae and abdominal segments set with long setae, some of which, although not those on the median area of the abdomen, are narrowly squamiform ; propygidium without short, broad, squamiform setae in punctures immediately above pygidium **peringueyi** Dalla Torre (p. 114)

—— Metasternum, episterna, hind coxae and abdominal segments with short, broad, squamiform setae in punctures, medially as well as laterally ; propygidium with short, white, squamiform setae in punctures immediately above pygidium . . . . **nigricornis** Burm. (p. 114)

25 (23) Hind pronotal margin with a distinct raised posterior border in front of scutellum (Text-fig. 9) . . . . (26)

—— Hind pronotal margin without a raised posterior border in front of scutellum . (27)

26 (25) Anterior face of clypeus convex vertically and with a median gap in its row of setiferous punctures (Text-fig. 6c) ; labral emargination at least 90° ; lateral borders of elytra with outstanding setae from bases to apical borders **algoensis** Pér. (p. 115)

—— Anterior face of clypeus vertically plane and without a median gap in its row of setiferous punctures; labral emargination acute (Text-fig. 16); lateral borders of elytra with outstanding setae from bases to level of apical border of second abdominal segment . . . . ***infarsa*** Pér. (p. 116)

27 (25) Mentum not strongly convex and with two or more stiff setae arising from small pits along its basal border (Text-fig. 6M). [The pits are visible even if the setae have been broken off] . . . . (28)

—— Mentum strongly convex and without any setiferous pits along its basal border (31)

28 (27) Setae on metepisterna, hind coxae and posterolateral parts of metasternum minute, scarcely discernible; head not sharply angled at vertex which is without a transverse carina; *males* with antennae 9-segmented ***fallax*** (Pér.) (p. 117)

—— Setae on metepisterna, hind coxae and posterolateral parts of metasternum either long and fine or short and narrowly squamiform, readily visible in both cases; head at least sharply angled at vertex, vertex usually carinate; *males* with antennae 10-segmented . . . . (29)

29 (28) Labral emargination rightangled or very slightly acute; *males* with at least the lanterior tarsal claws with the upper ramus shorter and much finer than the lower and with the shorter of the two apical spurs of the hind tibiae straight or evenly curved . . . . (30)

—— Labral emargination strongly acute (*c.* 45°); both sexes with the upper ramus of all tarsal claws longer than the lower and with the shorter of the two apical spurs of the hind tibiae abruptly curved near its apex (Text-fig. 50) ***villosa*** Brenske (p. 118)

30 (29) *Males* with upper ramus of all tarsal claws much shorter and finer than lower and with the length-ratio of the hind tibial apical spurs *c.* 3 : 2. *Female* unknown . . . . ***lebidis*** n. n. (p. 119)

—— Males with upper ramus of anterior tarsal claws shorter and finer than lower, but upper rami of middle and hind tarsal claws much longer than lower; length-ratio of apical spurs of hind tibiae more than 2 : 1. *Female* with upper ramus of all tarsal claws longer than lower, with reduced wings and with squamiform setae on the metasternum, metepisterna and hind coxae . ***debilis*** Burm. (p. 120)

31 (27) The "*rugosa*" group. ***S. rugosa*** Brenske (p. 122); ***S. valvata*** Brenske (p. 123); ***S. elegans*** Pér. (p. 124); ***S. fatidica*** Pér (p. 124); ***S. indotata*** Pér. (p. 122); ? ***S. noscitata*** Pér. (p. 125).

32 (22) Posterior margin of pronotum set with long, upstanding setae similar to those along lateral borders of pronotum, anterior and lateral margins sometimes set with similar setae. (Species of moderate size, usually more than 13 mm. long, but rarely exceeding 16 mm. in length; underside of thorax set with long, fine, frequently yellow setae; upper ramus of all tarsal claws longer than lower ramus; outstanding setae along lateral borders of elytra usually extending from bases to well behind level of hind coxae.) . . . . . (33)

—— Posterior margin of pronotum without long, upstanding setae similar to those along its lateral borders . . . . (36)

33 (32) Clypeus with a longitudinal median carina arising from upper anterior border (Text-fig. 21); clypeal carina weakly angled medially; raised pygidial border no thicker apically than along lateral margins . . . . (34)

—— Clypeus without any trace of a longitudinal median carina; transverse clypeal carina evenly arcuate; pygidium with raised borders distinctly thicker apically than laterally (Text-fig. 26) . . . . . ***fartula*** Pér. (p. 126)

34 (33) Pronotum with long, outstanding setae along anterior margin and posterior half of lateral margins similar to those along posterior margin in front of scutellum; head less transverse (53 : 75), without a transverse carina across vertex and not sharply angled at vertex; prosternum in front of anterior coxae set with setae near its junction with the hypomera and on the impressed median area; *female* . . . . ***crinita*** Brenske (p. 127)

—— Pronotum without long, outstanding setae along anterior margin and posterior half of lateral margins ; head more transverse (at least 50 : 80), sharply angled at vertex and sometimes with a transverse carina on vertex ; prosternum in front of coxae without setae near its junction with hypomera and with impressed median area glabrous or almost so ; *male* and *female* . . . (35)

35 (34) Lateral and apical borders of elytra fringed with outstanding, testaceous setae from bases almost to apicosutural angles ; setiferous face of elytral epipleura vertical along apical borders (Text-fig. 28) ; pygidium more transverse (5 : 7) ; anterior border of pronotum forwardly arcuate medially (as in Text-fig. 31) . . . . **dissensa** Pér. (p. 128)

—— Lateral borders of elytra fringed with outstanding setae from bases to at most the level of the fifth abdominal segment, apical borders glabrous or with very small, inconspicuous setae ; elytral epipleura inflected along apical borders (Text-fig. 27) ; pygidium almost quadrate (58 : 60) ; anterior border of pronotum not forwardly arcuate medially . . . **unicolor** (Herbst.) (p. 129)

36 (32) Mentum with two or more long setae arising from small pits along its basal border (Text-fig. 6m). The pits are visible even if the setae have broken off (37)

—— Base of mentum smooth, without setiferous pits along its length . . . (102)

37 (36) Anterior face of clypeus without a median gap in its row of setiferous punctures ; labral emargination right-angled or obtuse ; upper ramus of all tarsal claws longer than lower . . . . (38)

—— Anterior face of clypeus with at least a narrow median gap in its row of setiferous punctures, or if without a gap then labral emargination acute and upper ramus of tarsal claws shorter and finer than lower . . . . . . (54)

38 (37) Lateral borders of elytra with stiff, outstanding setae confined to between bases and level of hind coxae. (Occasional specimens may have setae extending as far back as the level of the first abdominal segment) ; small species, up to 12·5 mm. long as a rule . . . . (39)

—— Lateral borders of elytra fringed with stiff, outstanding setae from bases to level of third abdominal segment or beyond ; size variable . . . . . . (44)

39 (38) Lower ramus of tarsal claws distinctly less than half as long as upper and often directed almost at rightangles to upper (Text-fig. 13) ; elytral intervals with more or less distinct shagreening between coarse punctures ; antennae 10-segmented . . . . (40)

—— Lower ramus of tarsal claws at least half as long as upper and usually closely applied to it ; elytra almost or quite smooth between coarse punctures ; antennae 9-segmented . . . . **hybrida** (Pér.) (p. 132)

40 (39) Metasternum, metepisterna and hind coxae set with broad, white, squamiform setae, much larger than those of elytral punctures ; pronotal punctures distinctly asperose toward anterior margin . . **mediastina** Pér. (p. 133)

—— Metasternum ,metepisterna and hind coxae set with setae which are scarcely squamiform, if at all ; pronotal punctures at most slightly asperose along extreme anterior margin . . . . (41)

41 (40) Setae along lateral pronotal borders scarcely half as long as maximum width of anterior tibiae ; colour variable ; setae along lower face of hind femora short, not extending over posterior edge of hind femora (Text-fig. 45) . . . (42)

—— Setae along lateral pronotal borders almost as long as maximum width of anterior tibiae ; colour ferruginous ; setae along lower face of hind femora longer, extending well behind posterior edge of femora . **insuesa** Pér. (p. 134)

42 (41) Clypeal carina raised across median three fifths of head only ; colour variable from castaneous to black ; head more broadly truncated anteriorly (Text-fig. 20) . . . . (43)

—— Clypeal carina distinct as a raised ridge or step from one side of the head to the other ; colour pale yellowish testaceous ; head much less broadly truncated anteriorly . . . . **puerilis** Pér. (p. 134)

43 (42) Pygidium almost plane vertically ; colour usually black . **barda** Burm. (p. 135)

—— Pygigium strongly convex vertically ; colour castaneous . **effeta** Pér. (p. 136)

44 (38) Mentum distinctly concave ; colour testaceous to castaneous ; size small to moderate (11–14 mm. long) . . . . (45)

—— Mentum almost or quite flat ; colour variable ; size variable . . . (48)

45 (44) Relatively broader species (*c.* 13–14 mm. × 7·5 mm.) ; clypeus usually with a short longitudinal median carina arising from anterior edge and running backward for about one third of the length of the clypeus (Text-fig. 22) ; setae along lateral borders of pronotum obviously longer than maximum width of anterior tibiae . . . . (47)

—— Relatively narrower species (11 mm. × 5 mm.) ; clypeus without any trace of a longitudinal median carina ; setae along lateral borders of pronotum shorter than maximum width of anterior tibiae . . . . (46)

46 (45) Lateral and apical margins of elytra finely, but strongly shagreened, discs much less strongly sculptured ; anterior border of pronotum and that of hypomera meeting at an angle when viewed from one side (as in *S. puerilis*, Text-fig. 35) ; both sexes with pygidium having an almost evenly convex profile **marginata** sp. n. (p. 138)

—— Lateral and apical margins of elytra similarly sculptured to discs of elytra ; anterior border of pronotum and that of hypomeron continuing in a more or less straight line when viewed from one side (as in *S. bohemani*, Text-fig. 36); *male* with pygidium much more strongly convex near apex than elsewhere ; *female* with pygidium bearing a subapical tubercle **windhoekensis** sp. n. (p. 137)

47 (45) Frons distinctly concave longitudinally ; head sharply angled at vertex ; impressed median area of prosternum setiferous (as in Text-fig. 6P) **gonaquoides** sp. n. (p. 140)

—— Frons convex ; head not sharply angled at vertex ; impressed median area of prosternum glabrous or with two or three setae along its anterior border **gonaqua** Pér. (p. 139)

48 (44) Colour usually black ; intervals between coarse elytral punctures finely, but strongly shagreened ; surface dull . . . . (49)

—— Colour pale testaceous to pale castaneous ; intervals between coarse elytral punctures smooth or with faint, sometimes incomplete microsculpture . . (50)

49 (48) Larger species (13–16 mm. long) ; *female* only ; punctures of pronotal disc small, transverse, usually emarginate along their anterior border (Text-fig. 7) ; elytra without outstanding setae along their apical borders . . **rotunda** sp. n. (p. 140)

—— Smaller species (10–12 mm. long) ; pronotal punctures relatively larger, almost circular, not emarginate anteriorly (Text-fig. 8) ; elytra usually with an apical fringe of short, stiff setae . . . . . . **globator** (F.) (p. 141)

50 (48) Basal hind tarsal segment at least as long as second segment ; labral emargination obtuse, but obvious . . . . (51)

—— Basal hind tarsal segment distinctly shorter than second ; labrum scarcely emarginate at all. (Vertex of head not sharply angled and without a transverse carina ; pronotum with a very narrow, raised hind border in front of scutellum.) . . . . **jordani** sp. n. (p. 143) (Text-fig. 3)

51 (50) Smaller species (9–11 mm. long) ; (Clypeus with a short, longitudinal median carina arising from anterior edge ; vertex of head at least sharply angled, sometimes with a vaguely indicated transverse carina) **clypealis** sp. n. (p. 144)

—— Larger species (15–17 mm. long) . . . . (52)

52 (51) Clypeus without a longitudinal median carina arising from anterior edge ; hind margin of pronotum with a raised hind border in front of scutellum ; impressed median area of prosternum in front of anterior coxae glabrous **damarina** Pér. (p. 145)

—— Clypeus with a longitudinal median carina arising from anterior edge (as in Text-fig. 21); hind pronotal margin without a raised posterior border in front of scutellum; impressed median area of prosternum almost always setiferous (53)

53 (52) Intervals between coarse elytral punctures finely shagreened, without noticeable micropunctures; labral emargination strongly obtuse; apicosutural angles of elytra not produced to form a minute spine . . . **laticia** n. n. (p. 148)

—— Intervals between coarse elytral punctures smooth, or with traces of incomplete shagreening and with some scattered micropunctures; labral emargination almost rightangled; apicosutural angles of elytra slightly produced (Text-fig. 29) . . . . **ciliata** Burm. (p. 146)

54 (37) Colour black to pitchy; intervals between coarse pronotal and elytral punctures finely, but strongly shagreened, surface not very shining; maximum size about 16 mm. long; labral emargination usually acute, sometimes weakly obtuse . . . . (55)

—— Without the above characters in combination . . . . (61)

55 (54) Labral emargination acute; lower ramus of all tarsal claws less than half as long as upper ramus and divergent from it (as in Text-figs. 10 and 14); *males* with length-ratio of apical spurs of hind tibiae at least 2 : 1 (*cf.* Text-fig. 49) **quaesita** Pér. (p. 149)

—— If tarsal claws so formed and apical spurs of hind tibiae are with a length-ratio of 2 : 1 or more, then labral emargination rightangled or slightly obtuse . (56)

56 (55) Labral emargination acute; *males* with upper ramus of all tarsal claws shorter and finer than lower . . . . (57)

—— Labral emargination 90° or slightly more; *males* with upper ramus of all tarsal claws longer than lower . . . . (59)

57 (56) Elytral epipleura clearly marked from bases to apicosutural angles; all, or almost all setae of hind coxae fine, non-squamiform; lateral borders of elytra with outstanding setae from bases to level of third or fourth abdominal segment; elytra evenly punctured . . . . (58)

—— Elytral epipleura progressively less clearly defined posteriorly beyond level of third abdominal segment, absent from apical borders (Text-fig. 43); most setae of hind coxae short, white and squamiform; lateral borders of elytra with outstanding setae confined to between bases and level of second abdominal segment; elytra distinctly less closely punctured toward apices than elsewhere . . . . **compacta** sp. n. (p. 150)

58 (57) Setae in discal punctures of pronotum and elytra white, squamiform, moderately large, readily visible to the naked eye; metepisterna and sometimes metasternum and hind coxae also, with a few large, squamiform setae **piceonigra** sp. n. (p. 151) (Text-fig. 2)

—— Setae in punctures of pronotal and elytral discs minute, inconspicuous; metasternum, metepisterna and hind coxae with long, fine, non-squamiform setae in punctures, no squamiform setae present . . **spuria** Pér. (p. 152)

59 (56) Most setae of metasternum, metepisterna and hind coxae and abdominal segments broad, white, squamiform; clypeus without any trace of a longitudinal median carina; lateral borders of elytra with long, outstanding setae confined to between bases and level of hind coxae . **pseudosquamifera** sp. n. (p. 152)

—— Most setae of metasternum, metepisterna and hind coxae long, fine, non-squamiform; clypeus usually with a short longitudinal median carina arising from anterior edge (as in Text-fig. 22); lateral borders of elytra set with outstanding setae from bases to at least level of second or third abdominal segment . . . . (60)

60 (59) Larger species (13–16 mm. long); *female* only; punctures of pronotal disc small, transverse, usually emarginate along their anterior border (Text-fig. 7); elytra without setae along their apical borders . . **rotunda** sp. n. (p. 140)

—— Smaller species (10–12 mm. long) ; *male* and *female* ; pronotal punctures relatively much larger, almost circular, not emarginate anteriorly (Text-fig. 8) ; elytra usually with an apical fringe of short setae . . ***globator*** (F.) (p. 141)

61 (54) Lateral and apical margins of elytra strongly shagreened between coarse punctures, intervals on disc comparatively smooth. [Squamiform setae of metasternum, episterna, hind coxae and abdominal segments much broader and more conspicuous than those of pronotum and elytra] . ***livida*** Klug (p. 153)

—— Lateral and apical margins of elytra similarly sculptured to discs . . . (62)

62 (61) Labral emargination acute and most setae of metepisterna, hind coxae and posterolateral parts of metasternum large, white, squamiform, conspicuous ; head usually with a more or less clearly marked transverse carina on vertex (not in *S. abenaba* sp. n.) . . . . (63)

—— If labral emargination acute then the majority of the setae in punctures of metasternum, episterna and hind coxae are fine and non-squamiform ; vertex of head with or without a transverse carina . . . . (70)

63 (62) Pronotum with a raised ridge along hind border in front of scutellum ; *males* with length-ratio of apical spurs of hind tibiae less than 2 : 1 ; upper ramus of anterior tarsal claws not longer than lower . . . . (64)

—— Pronotum without a raised hind border in front of scutellum ; *males* with length-ratio of apical spurs of hind tibiae variable ; upper ramus of anterior tarsal claws longer or shorter than lower . . . . (65)

64 (63) Head with a distinct transverse carina on vertex ; intervals between coarse punctures of elytra smooth ; pygidial punctures deep, close, separated by one diameter or less ; intervals between coarse punctures of pronotum almost smooth . . . . ***salaama*** Brske. (p. 155)

—— Head without a raised carina across vertex ; intervals between coarse elytral punctures coriaceous ; pygidial punctures very shallow, sparse, separated as a rule by several diameters ; intervals between coarse pronotal punctures with distinct, though fine microsculpture . . . . ***abenaba*** sp. n. (p. 155)

65 (63) Anterior border of pronotum and that of hypomeron continuing in a more or less straight line when viewed from one side (Text-fig. 5) ; *males* with length-ratio of apical spurs of hind tibiae less than 2 : 1 and with upper ramus of anterior tarsal claws shorter and finer than lower . ***usambarae*** Brske. (p. 156)

—— Anterior border of pronotum and that of hypomeron meeting at an angle when viewed from one side (as in *S. puerilis*, Text-fig. 35) ; *males* with length-ratio of apical spurs of hind tibiae 2 : 1 or more and with upper ramus of all tarsal claws longer or shorter than lower . . . . (66)

66 (65) Lateral borders of elytra with stiff, outstanding setae from bases to level of hind coxae only . . . . (67)

—— Lateral borders of elytra with stiff, outstanding setae from bases almost to apical borders . . . . (68)

67 (66) Intervals between coarse punctures on disc of pronotum smooth except for micropunctures ; anterior pronotal border forwardly arcuate medially, evenly emarginate on either side from anterior angles to median arcuation ***continens*** Pér. (p. 158)

—— Intervals between coarse punctures of pronotal disc finely shagreened ; anterior border of pronotum forwardly arcuate laterally behind eyes ***neglecta*** Boh. (p. 160)

68 (66) Larger species (15 mm. long or more) ; *males* with upper ramus of anterior tarsal claws shorter and finer than lower and with length-ratio of apical spurs of hind tibiae about 2 : 1 ; labral emargination weakly acute (75°–80°) ***scabiosa*** Pér. (p. 161)

—— Smaller species (12–13 mm. long) ; *males* with upper ramus of anterior tarsal claws distinctly longer than lower and with the length-ratio of the apical spurs of the hind tibiae more than 2 : 1 ; labral emargination strongly acute (*c.* 45°) (69)

69 (68) Membraneous lateral edges of elytra as wide as epipleura (Text-fig. 44); propygidium transversely rugulose immediately above squamiferous apical punctures; pronotal intervals usually smooth except for micropunctures **mimocontinens** sp. n. (p. 159)

—— Membraneous lateral edges of elytra much narrower than epipleura; propygidium with discrete, transverse punctures immediately above squamiferous apical punctures; pronotal intervals usually with fine and extremely faint, reticulate microsculpture . . . . **kochi** sp. n. (p. 163)

70 (62) Labral emargination distinctly acute; posterior margin of pronotum with a distinct raised hind border in front of scutellum . . . . . . (71)

—— If labral emargination acute, then pronotum without a raised hind border in front of scutellum . . . . (81)

71 (70) Much smaller species (9–11 mm. long); vertex of head with a clearly defined, though fine transverse carina . . . . (72)

—— Larger species (more than 12 mm. long); vertex of head with or without a transverse carina . . . . (73)

72 (71) Pronotum with intervals between coarse punctures finely and faintly shagreened and set with minute punctures separated by from about six to ten diameters; *males* with upper ramus of at least the middle and hind tarsal claws longer than lower; setae in punctures of metasternum, episterna and hind coxae fine, non-squamiform . . . . **inedita** Pér. (p. 98)

—— Pronotum with intervals between coarse punctures smooth, shining, without micropunctures; *males* with upper ramus of all tarsal claws finer and distinctly shorter than lower; metasternum, episterna and hind coxae with small squamiform setae as well as non-squamiform hairs **matabelana** Pér. (p. 163)

73 (71) Lateral borders of pronotum distinctly crenulate when viewed from the side (Text-fig. 38); colour variable; tarsal claws variably constructed . . (74)

—— Lateral borders of pronotum almost without crenulation except for a few notches behind middle; colour usually dark red-brown; tarsal claws of both sexes with upper ramus longer than lower on all legs **puncticollis** Boh. (p. 164)

74 (73) Vertex of head sharply angled, but without a transverse carina; *males* with upper ramus of tarsal claws slightly shorter and finer than lower; head as in Text-fig. 24 when viewed from above . . . **ovampoana** Pér. (p. 166)

—— Vertex of head with a raised transverse carina; *males* with upper ramus of tarsal claws longer or shorter than lower; head with upper anterior edge of clypeus and clypeal carina not approaching each other so closely as in *ovampoana* Pér. . . . . (75)

75 (74) Intervals between coarse punctures of pronotum and elytra smooth except for micropunctures; *males* with lamellae of antennal club a little longer than funicle . . . . **profuga** Pér. (p. 167)

—— Intervals between coarse punctures of pronotum finely shagreened; intervals between coarse punctures of elytra frequently with fine shagreening also; *males* with lamellae of antennal club up to twice as long as funicle . . (76)

76 (75) Raised hind border of pronotum clear and uninterrupted between hind angles . (77)

—— Raised hind border of pronotum partly obliterated by punctures toward hind angles . . . . (78)

77 (76) Upper ramus of all tarsal claws always longer than lower; clypeal carina evenly arcuate; intervals between coarse elytral punctures usually finely shagreened; antennae always 10-segmented . . . . . **citima** Pér (p. 169)
livada n. n. (p. 168)

—— Upper ramus of all tarsal claws shorter and finer than lower; clypeal carina angled medially; intervals between coarse elytral punctures usually smooth or almost so; antennae often 9-segmented, or with the fourth and fifth segments partially fused . . . . . **salisburiana** Pér. (p. 170)

78 (76) Pronotum much less closely punctured on posterior half of disc than elsewhere ; upper ramus of all tarsal claws shorter and finer than lower ; clypeus broadest before frontoclypeal junction ; impressed median area of prosternum in front of anterior coxae glabrous . . . . . . **spectabilis** Pér. (p. 171)

—— Pronotum more or less evenly punctured ; upper ramus of all tarsal claws obviously longer than lower ; impressed median area of prosternum setiferous (as in Text-fig. 6P) . . . . (79)

79 (78) Larger species (18–21 mm. long) ; pectoral setae sparse, shorter along hind coxae than elsewhere ; colour usually very dark castaneous to fuscous **valida** Boh. (p. 172)

—— Smaller species (12–17 mm. long) ; all pectoral setae long and fine, densely set ; colour usually pale testaceous to pale castaneous . . . . . . (80)

80 (79) Smaller species (12–14 mm. long) ; labral emargination weakly acute (*c.* 80°) ; setae in punctures of pronotal and elytral discs relatively larger, narrowly squamiform . . . . **vryburgensis** sp. n. (p. 174)

—— Larger species (15–17 mm. long) ; labral emargination more strongly acute (*c.* 60°) ; pronotal and elytral setae relatively smaller and less conspicuous, scarcely squamiform, if at all . . . . **rufina** Boh. (p. 175)

81 (70) Labral emargination acute ; pronotum without a raised hind border in front of scutellum . . . . (82)

—— Labral emargination 90° or more ; pronotum with or without a raised hind border in front of scutellum . . . . (87)

82 (81) Clypeus shorter along midline than frons ; setae in punctures on posterior parts of metasternum, metepisterna and hind coxae minute, inconspicuous ; antennae 9-segmented . . . . **straminea** (Pér.) (p. 176)

—— Clypeus at least as long as frons in midline ; most setae in punctures of posterior parts of metasternum, metepisterna, and hind coxae long, conspicuous ; antennae 10-segmented . . . . (83)

83 (82) Underside of hind femora with posterior row of setiferous punctures approaching apex less closely (Text-fig. 47) ; anterior border of pronotum and that of hypomeron continuing in an almost straight line when viewed from the side (as in *S. bohemani*, Text-fig. 36) . . . . (84)

—— Underside of hind femora with posterior row of setiferous punctures approaching apex more closely (Text-fig. 46) ; anterior border of pronotum and that of hypomeron meeting at an angle when viewed from the side . . . . . (85)

84 (83) Pygidium very closely and strongly punctured, punctures separated by less than one diameter as a rule ; pygidium more or less evenly convex when viewed from above ; clypeal carina evenly arcuate . **rhodesiana** Moser (p. 177)

—— Pygidium shallowly punctured, punctures separated by more than one diameter, often by more than two diameters ; pygidium much more convex laterally than across disc when viewed from above ; clypeal carina bluntly angled medially . . . . **manicana** Pér. (p. 178)

85 (83) Outstanding setae along lateral borders of pronotum shorter than basal anterior tarsal segment ; head between eyes across vertex relatively narrower com pared with maximum pronotal width (70 : 165) ; *males* with upper ramus of anterior tarsal claws much shorter and finer than lower and with the shorter of the two apical spurs of the hind tibiae more than half as long as and narrower than the longer spur . . . . (86)

—— Outstanding setae along lateral borders of pronotum longer than basal anterior tarsal segment ; head between eyes across vertex broader in proportion to maximum pronotal width (85 : 165) ; *males* with upper ramus of all tarsal claws longer than and as broad at base as lower and with the length-ratio of the apical spurs of the hind tibiae more than 2 : 1, the shorter spur broader than the longer one . . . . **constrata** Pér. p. (179)

86 (85) Relatively more elongate species (14·5–15 mm. × 7·5 mm.); third (basal) external tooth of anterior tibiae well marked; castaneous; eighth antennal segment shining along midline, but matt along lateral margins **scabiosa** Pér. (p. 161)

—— Relatively less elongate species (14–15 mm. × 8–8·5 mm.); third external tooth of anterior tibiae feebly indicated; colour pitchy-red; eighth antennal segment shining all over its exposed surface . . **inostralis** sp. n (p. 180)

87 (81) Hind margin of pronotum with a raised posterior border in front of scutellum (Text-fig. 9); vertex of head with a well-marked transverse carina; intervals between coarse pronotal punctures smooth except for micropunctures; large insects (*c.* 15 mm. × 8 mm.) . . . . **profuga** Pér. (p. 167)

—— Pronotum without a raised posterior border in front of scutellum, or if with a raised border then head without a transverse carina on vertex; pronotal intervals variably sculptured; size variable . . . . (88)

88 (87) Small species (10·5–12 mm. long); upper ramus of all tarsal claws shorter and finer than lower; colour testaceous; most setae of abdominal segments short, obovate, white, appressed, squamiform; head strongly narrowed from broadest point to vertex (95 : 75) . . . . . **gracilis** Brske. (p. 110)

—— Size variable; upper ramus of middle and hind tarsal claws always longer than lower; if setae of abdominal segments in part squamiform, then narrowly and pointedly so, not or scarcely broader than those of upper surfaces; head feebly narrowed from broadest point to vertex . . . . (89)

89 (88) Epipleurae almost obliterated along apical half of elytra, continuing in the same plane as the lateral margins of the elytra, but distinguishable from the latter by different surface sculpture; approximately 14 mm. long **deceptor** sp. n. (p. 182) (Text-fig. 1)

—— Epipleurae distinct from bases to apicosutural angles of elytra, set at an angle to the lateral margins of the elytra; size variable . . . . . (90)

90 (89) Colour pale yellow-testaceous; small (9–11 mm. long); setae of metepisterna and hind coxae minute; anterior border of pronotum and that of hypomeron meeting at an angle when viewed from the side (as in *S. puerilis*, Text-fig. 35); *males* with the antennae 9-segmented and with the apices of the hind tibiae produced into a curved spine (Text-fig. 48) . . . **inverta** (Pér.) (p. 183)

—— Without the above characters in combination . . . . (91)

91 (90) Small species (*c.* 10 mm. long); very dark red-brown in colour; pronotum without distinct, transverse, subbasal, impunctate areas; vertex of head sharply angled and with a feebly raised, transverse carina. (Setae of hind coxae short and appressed, but non-squamiform) . . **minor** sp. n. (p. 184)

—— Larger species (11 mm. long or more); colour variable; pronotum with distinct transverse, subbasal, impunctate areas (cf. Text-fig. 32); head with vertex angled or blunt, with or without a transverse carina . . . . . (92)

92 (91) Clypeus with a short, longitudinal median carina arising from anterior edge (Text-fig. 21); species always more than 15 mm. long; anterior edge of clypeus biarcuate; intervals between coarse punctures of elytra with micropunctures as well as traces of shagreening . . . . . . (93)

—— Clypeus without any trace of a longitudinal median carina; anterior edge of clypeus variable in outline; size variable; intervals between coarse elytral punctures variably sculptured . . . . (94)

93 (92) Labral emargination almost rightangled; lateral borders of elytra with stiff, outstanding setae from bases to apicosutural angles; punctures of pronotal disc not asperose . . . . **ciliata** Burm. (p. 146)

—— Labral emargination obviously obtuse; lateral borders of elytra with stiff, outstanding setae from bases to level of third abdominal segment; punctures of pronotal disc distinctly asperose . . . . **perforata** Burm. (p. 185)

94 (92) Labral emargination approximately rectangular (Text-figs. 17 and 18); species more than 12·5 mm. long . . . . (95)

—— Labral emargination obviously obtuse (Text-fig. 19); size variable . . (98)

95 (94) Anterior border of pronotum straight medially (Text-fig. 39); head at least sharply angled at vertex, frequently with a raised, transverse carina; size larger (14·5–16 mm. long or more); pronotum not, or scarcely narrowed from broadest point to base . . . . (96)

—— Anterior border of pronotum forwardly arcuate medially (Text-fig. 31); head neither sharply angled at vertex nor with a transverse carina across vertex; size smaller (13–15 mm. long); pronotum obviously broader near middle than at base . . . . **abscondita** sp. n. (p. 186)

96 (95) Lateral borders of elytra with stiff, outstanding setae from bases to level of second abdominal segment only; lower ramus of tarsal claws less than half as long as upper and divergent from it (Text-fig. 10); intervals between coarse pronotal punctures set with micropunctures as well as being finely shagreened . . . . **abrupta** sp. n. (p. 181)

—— Lateral borders of elytra set with stiff, outstanding setae from bases to level of at least fourth abdominal segment; lower ramus of tarsal claws not as in Text-fig. 10; intervals between coarse pronotal punctures finely shagreened, but without micropunctures . . . . (97)

97 (96) Setae along lateral borders of pronotum longer than basal anterior tarsal segment; *males* with upper ramus of anterior tarsal claws longer than lower and eighth antennal segment shining over the whole of its exposed surface **capensis** Burm. (p. 187)

—— Setae along lateral borders of pronotum shorter than basal anterior tarsal segment; *males* with upper ramus of anterior tarsal claws shorter and finer than lower and with eighth antennal segment shining along the midline of its exposed surface, but matt along its lateral margins . **scabiosa** Pér. (p. 161)

98 (94) Vertex of head sharply angled, usually bearing a transverse carina; larger species, usually more than 13 mm. long . . . . (99)

—— If head with a vaguely indicated carina across vertex, then size less than 12 mm. long . . . . (100)

99 (98) Raised borders of pygidium broader apically than along sides (Text-fig. 26); intervals between coarse punctures of pronotum and elytra with fine, but distinct and complete microsculpture; *males* with length-ratio of apical spurs of hind tibiae less than 2 : 1 and with lower ramus of tarsal claws at least half as long as upper and closely applied to it . . . **fartula** Pér. (p. 126)

—— Raised borders of pygidium as narrow apically as elsewhere; intervals between coarse punctures of pronotum and elytra with faint, incomplete shagreening, or almost smooth except for micropunctures; *males* with length-ratio of apical spurs of hind tibiae at least 2 : 1 and with lower ramus of all tarsal claws less than half as long as upper and widely divergent from it (Text-fig. 10) **abrupta** sp. n. (p. 181)

100 (98) Lateral borders of pronotum not crenulate for anterior fourth; lateral borders of elytra set with outstanding setae from bases to at most the level of the hind coxae; clypeal carina sharp, more or less evenly arcuate . (101)

—— Lateral borders of pronotum crenulate from anterior to posterior angles; lateral borders of elytra set with outstanding setae from bases to apices; clypeal carina blunt, distinctly more strongly arcuate medially than laterally . . . . **boschimana** Pér. (p. 189)

101 (100) Anterior edge of clypeus depressed medially (Text-fig. 25), more or less evenly arcuate when viewed from above; frons without any trace of a longitudinal median carina . . . . . . **geilenkeuseri** Brske. (p. 190)

— Anterior edge of clypeus not depressed medially; distinctly flattened medially when viewed from above; frons usually with a weakly indicated longitudinal median carina . . . . ***meracula*** Pér. (p. 191)

102 (33) Pronotum with a raised hind border which is uninterrupted between hind angles of pronotum; anterior border of pronotum strongly sinuate toward anterior angles; head strongly narrowed from frontoclypeal junction to vertex, which bears a sharp, transverse carina . . . . . . (103)

— Pronotum without a raised hind border in front of scutellum, or if with a border then it is obliterated, or partly obliterated by punctures toward hind angles of pronotum; anterior border of pronotum evenly emarginate or sinuate toward anterior angles; head narrowed or parallel-sided from frontoclypeal junction to vertex which may or may not have a transverse carina . . . . (104)

103 (102) Tarsal claws with upper ramus at most as long as lower; most setae of metepisterna, hind coxae and posterolateral parts of metasternum large, white, appressed and squamiform, much larger than those of upper surfaces; setae on apical third of pygidium much longer than those elsewhere on its surface . . . . ***inops*** Pér. (p. 108)

— Tarsal claws with upper ramus distinctly longer than lower; most setae of metepisterna, hind coxae and posterolateral parts of metasternum long, fine, subrecumbent, non-squamiform; pygidium with very short setae in all punctures . . . . ***citima*** Pér. (p. 169)
livada n. n. (p. 168)

104 (102) Clypeal carina strongly arcuate; posterior angles of pronotum sharply formed; lower ramus of all tarsal claws at least half as long as upper and usually as broad at base as upper ramus . . . . (105)

— Clypeal carina straight medially or slightly bisinuate; posterior angles of pronotum briefly rounded (Text-fig. 37); *males* with lower ramus of tarsal claws less than half as long as upper and distinctly narrower at its base (as in Text-fig. 14) . . . . ***inscita*** (Pér.) (p. 192)

105 (104) Intervals between coarse punctures of pronotum and elytra finely, but strongly shagreened; surface dull; colour black to pitchy as a rule; head not narrowed from a little in front of frontoclypeal suture to vertex; vertex without a raised transverse carina and without a transverse groove; anterior border of pronotum evenly emarginate . . . . . . (106)

— Intervals between coarse elytral punctures almost or quite smooth, surface shining, or if shagreened then colour testaceous to castaneous and head with a transverse groove across vertex . . . . (108)

106 (105) Some setae of metasternum, metepisterna, hind coxae and abdominal segments white, squamiform, conspicuous; outstanding setae along lateral borders of elytra extending from bases to, or almost to, apices; *males* winged . . . . (107)

— All setae of metasternum, metepisterna, hind coxae and abdominal segments non-squamiform, inconspicuous; outstanding setae along lateral borders of elytra confined to between bases and level of hind coxae; both sexes with reduced, non-functional wings . . ***globa*** sp. n. (p. 193) (Text-fig. 4)

107 (106) Squamiform setae of the upper surfaces broad, conspicuous to the naked eye, rounded apically . . . . . . ***squamifera*** Wallengren (p. 195)

— Setae of upper surfaces small, inconspicuous, narrowly squamiform, not rounded apically . . . . ***carbonaria*** Boh. (p. 196)

108 (105) Pronotum with a raised hind border in front of scutellum, or if without such a border than anterior border of pronotum obviously sinuate toward anterior angles . . . . (110)

—— Pronotum without a raised hind border medially and with anterior border evenly emarginate . . . . (109)

109 (108) Labral emargination distinctly acute ; outstanding setae along lateral borders of elytra confined to between bases and level of hind coxae ; metepisterna, hind coxae and posterolateral parts of metasternum set with short, broad, white, squamiform setae . . . . . . ***dissimilis*** Pér. (p. 197)

—— Labral emargination 90° or more ; outstanding setae along lateral borders of elytra extending from bases to level of second or third abdominal segment ; metasternum, metepisterna and hind coxae with all, or almost all setae long, fine and non-squamiform . . . . . . ***saga*** Pér. (p. 198)

110 (108) Head at least sharply angled at vertex, vertex either with a transverse carina or with a transverse groove . . . . (111)

—— Head not sharply angled at vertex which is without either a transverse carina or groove . . . . (116)

111 (110) Derm pale testaceous to pale castaneous, head and pronotum often slightly darker than elytra ; lateral borders of elytra with stiff, outstanding setae confined to between bases and level of hind coxae, or if setae extend backward beyond this point then size of insect smaller (less than 11 mm. long) . . . . (112)

—— Derm dark pitchy-red ; lateral elytral borders with long, outstanding setae from bases almost to apical borders ; species at least 12·5 mm. long ***perplexabilis*** Pér. (p. 199)

112 (111) Labral emargination strongly acute (cf. Text-fig. 16) . . . . . . (113)

—— Labral emargination 90° or more . . . . (115)

113 (112) Intervals between coarse punctures of pronotum smooth, shining ; lateral borders of elytra with stiff, outstanding setae from bases to within about one third from apices ; small species (*c.* 9 mm. long) ***matabelana*** Pér. (p. 163)

—— Intervals between coarse punctures of pronotum with fine shagreening; lateral borders of elytra with stiff, outstanding setae confined to between bases and level of hind coxae ; size variable . . . . (114)

114 (113) Smaller species (*c.* 10 mm. long) ; head with a transverse groove on vertex ; *males* with antennae 9-segmented and upper ramus of all tarsal claws shorter and finer than lower ; prosternum without setae on either side near its junction with hypomeron . . . . . . ***filiola*** Moser (p. 200)

—— Larger species (*c.* 12 mm. long) ; vertex of head with a conspicuous transverse carina ; *males* with upper ramus of all tarsal claws longer than lower and with antennae 10-segmented ; prosternum with a few setae on either side near its junction with hypomeron . . . . ***dilucida*** Brske. (p. 201)

115 (112) Smaller species (less than 10·5 × 5·5 mm.) ; elytra with intervals between coarse punctures somewhat irregularly raised, but without definite microsculpture ; anterior angles of pronotum not forwardly produced when viewed from above . . . . ***infans*** (Pér.) (p. 202)

—— Larger species (at least 11·5 × 6·5 mm.) ; intervals between coarse elytral punctures finely shagreened ; anterior angles of pronotum usually slightly produced when viewed from above (Text-fig. 33) . . ***corrosa*** Burm. (p. 203)

116 (110) Median gap in row of setiferous punctures along anterior face of clypeus bridged by non-setiferous punctures . . . . (117)

—— Median gap in row of setiferous punctures along anterior face of clypeus not bridged by non-setiferous punctures . . . . (118)

117 (116) Small species (*c.* 9 mm. long) ; dark fuscous ; upper surfaces with large, white, conspicuous, squamiform setae in punctures ; *males* with antennae 10-segmented and with upper ramus of all tarsal claws longer than lower ***minima*** Pér. (p. 205)

— Usually larger species (11–13 mm. long) ; pale testaceous ; upper surfaces with minute, inconspicuous setae in punctures ; *males* with antennae 9-segmented and with upper ramus of all tarsal claws shorter and finer than lower . . . . ***affinis*** Boh. (p. 206)

118 (116) Anterior border of pronotum forwardly arcuate medially as in Text-fig. 31. [Medium sized species—14–15 × 7–8 mm.—upper and lower rami of all tarsal claws of almost equal length (Text-fig. 12)] . ***fimbriata*** Brenske (p. 207)

— Anterior border of pronotum not forwardly arcuate medially . . . (119)

119 (118) Intervals between coarse punctures of pronotal disc finely shagreened . . (120)

— Intervals between coarse punctures of pronotal disc not finely shagreened . (122)

120 (119) Outstanding setae along lateral borders of pronotum at least as long as greatest width of anterior tibiae ; posterior pronotal angles obviously obtuse . . . . (121)

— Outstanding setae along lateral borders of pronotum scarcely more than half as long as maximum width of anterior tibiae ; lateral borders of pronotum abruptly sinuate shortly before hind angles which are almost rightangled (Text-fig. 34) . . . . ***natalensis*** Brenske (p. 210)

121 (120) Metasternum, metepisterna and hind coxae with fine, non-squamiform setae in punctures ; *males* with upper ramus of all tarsal claws shorter and finer than lower . . . . ***russula*** Boh. (p. 209)

— Metasternum, metepisterna and hind coxae with large, white, squamiform setae as well as some fine, non-squamiform hairs ; *males* with upper ramus of all tarsal claws longer than lower . . . ***perplexabilis*** Pér. (p. 199)

122 (119) Antennae 9-segmented ; *males* with metasternum, metepisterna and hind coxae bearing long, fine, densely set, yellow setae in punctures ; postero-median parts of metasternum as closely punctured as elsewhere ***ovatula*** Brenske (p. 211)

— Antennae 10-segmented ; both sexes with some short, appressed, frequently squamiform setae on metasternum, metepisterna and hind coxae . . (123)

123 (122) Smaller species (*c.* 10 mm. long) ; pale testaceous ; *males* with lamellae of antennal club about twice as long as funicle . . ***fraudigera*** Pér. (p. 212)

— Larger species (12 mm. long or more) ; usually castaneous to piceous (except for *S. rurigena* which may be lighter in colour) ; *males* with lamellae of antennal club little longer than funicle (5 : 4) . . . . . (124)

124 (123) Pronotum and elytra with punctures bearing minute, non-squamiform, inconspicuous setae not longer than the diameter of a puncture ; *males* with upper ramus of all tarsal claws shorter and finer than lower ; posterior angles of pronotum rightangled ; lateral borders of pronotum sinuate shortly in front of posterior angles (Text-fig. 34) . ***natalensis*** Brenske (p. 210)

— Pronotum and elytra with punctures bearing larger, narrowly squamiform setae, usually longer than the diameter of a puncture ; *males* with upper ramus of all tarsal claws longer than lower ; posterior angles of pronotum obviously obtuse . . . . (125)

125 (124) Lateral borders of elytra set with stiff, outstanding setae from bases to apical borders . . . . ***pauperata*** Pér. (p. 213)

— Lateral borders of elytra set with stiff, outstanding setae from bases to level of hind coxae, setae behind this point much shorter and more or less appressed . . . . ***rurigena*** Brenske (p. 215)

S. saginata Pér.

Schizonycha saginata Péringuey, 1904, p. 201.

Length 13 mm. Breadth 8 mm.

FEMALE

Derm black, not strongly shining. *Head* with labral emargination strongly obtuse; anterior clypeal face vertically convex and without a median gap in its row of setiferous punctures; anterior edge of clypeus broadly truncate medially; clypeal carina moderately arcuate; vertex with a strongly raised transverse carina; frons about one and a half times as long in midline as clypeus; clypeal punctures elongate; frontal punctures asperose, each puncture bearing a small, squamiform seta. *Pronotum* with anterior border evenly emarginate; anterior angles obtuse posterior angles entirely rounded; lateral borders fringed with setae often longer than basal anterior tarsal segment; surface with a pair of transverse, subbasal, impunctate areas, one on either side of midline, and a longitudinal median impunctate space; disc elsewhere asperoso-punctate, punctures bearing prominent, squamiform setae; intervals between punctures with fine shagreening; posterior margin without a raised hind border in front of scutellum. Scutellum transverse; set with three annulate punctures; surface finely shagreened. *Elytra* with punctures each bearing a prominent, squamiform seta similar to those of pronotum; intervals between punctures finely shagreened; lateral borders set with stiff, outstanding setae for basal third, median and apical thirds set with bunches of short, stiff setae giving a brush-like appearance. Pygidium annulate-punctate, punctures more closely set basilaterally; intervals finely shagreened. Metasternum, episterna and hind coxae with long, somewhat sparsely set setae. Abdominal segments with most setae arranged in transverse rows, a few squamiform setae also present laterally. *Legs* with anterior tibiae strongly tridentate externally; basal hind tarsal segment a little longer than second; tarsal claws with upper ramus more than twice as long as lower ramus and divergent from it.

MALE. Unknown.

Type locality: Bushmanland, Cape Province (S.A.M.).

The *female* type specimen is the sole example of the species known to me. I have been unable to associate it with any *male*.

S. durbana Pér.

Schizonycha durbana Péringuey, 1904, p. 219.

Length 12·5 mm. Breadth 6 mm.

MALE

Colour piceous—black. *Head* with labral emargination strongly obtuse; anterior clypeal face vertically convex, with a moderately broad median gap in its row of setiferous punctures; clypeal carina feebly arcuate; frontoclypeal suture clearly visible; vertex with a well marked transverse carina; broadest part of clypeus little broader than head across vertex; punctures of clypeus and frons closely set, irregular. *Pronotum* with anterior border feebly sinuate laterally, anterior angles obtuse; posterior angles rounded; posterior margin with a distinct raised hind border in front of scutellum; lateral borders with outstanding setae not longer than basal anterior tarsal segment ; surface with transverse, subbasal, impunctate areas ; disc set with annulate punctures of varying size and separation ; punctures more closely set antero-laterally, each bearing a minute, white, squamiform seta ; intervals finely, but strongly shagreened. Scutellum impunctate ; transverse ; surface finely shagreened. *Elytra* with punctures separated by somewhat less than one diameter, bearing small, white, squamiform setae ; intervals finely shagreened ; lateral borders with outstanding testaceous setae from bases to apical borders. Pygidium slightly transverse ; set with irregularly spaced, annulate punctures bearing minute, white, squamiform setae ; intervals finely, but as strongly shagreened as those of elytra. Metasternum, episterna and hind coxae set with long, rather sparsely arranged setae. Abdominal segments with scabrose punctures arranged in transverse rows across middle of segments, rows obscured by the addition of more punctures toward lateral margins ; setae across middle of segments fine, those of punctures toward lateral margins smaller, squamiform ; intervals finely shagreened, more strongly so laterally. *Legs* with anterior tibiae tridentate ; basal hind tarsal segment about three fourths as long as second ; upper ramus of tarsal claws about twice as long as lower and as broad at base.

Genitalia (Text-figs. 52 and 53).

FEMALE. Unknown to me. According to Péringuey, the *female* is very like the *male*.

Type locality : Durban, Natal (S.A.M.).

The male type specimen is the sole example of this species that I have seen.

S. inedita Pér.

Schizonycha inedita Péringuey, 1904, p. 210.

Length 10–12·5 mm. Breadth 5–5·5 mm.

MALE

Ferruginous. *Head* with labral emargination strongly acute (Text-fig. 16) ; anterior clypeal face reflexed medially, not convex vertically, with a moderately broad median gap in its row of setiferous punctures ; clypeal carina arcuate and frequently angulate medially ; anterior edge of clypeus shallowly emarginate medially, broadly rounded toward eyes ; vertex with a well marked transverse carina ; head strongly narrowed from frontoclypeal suture to vertex ; clypeal punctures elongate ; frontal punctures irregularly asperose ; both frontal and clypeal punctures bearing minute, pale yellow setae. *Pronotum* with anterior border shallowly arcuate medially, strongly sinuate laterally ; anterior angles obtuse ; posterior angles very strongly obtuse, sometimes obsolete ; posterior margin with a raised hind border in front of scutellum ; outstanding setae along lateral borders shorter than basal anterior tarsal segment ; surface with well marked transverse, sub-basal impunctate areas ; discal punctures coarse, sometimes slightly transverse and with emarginate anterior borders, separated by from one to about two diameters, slightly more closely arranged toward anterior border ; punctures bearing minute, fine setae scarcely longer than the diameter of a puncture; intervals between coarse punctures set with micropunctures and sometimes finely and faintly shagreened as well. Scutellum almost equilateral; annulate-punctate laterally; intervals quite strongly shagreened. *Elytra* with punctures separated by about one diameter; intervals as on pronotal disc; coarse punctures each bearing a minute, non-squaliform seta; lateral borders with stiff, outstanding setae from bases to level of apical border of fourth abdominal segment. Pygidium transverse (*c.* 4 : 5); punctures annulate and of very variable depth and separation, bearing setae similar to those of elytral punctures; intervals finely shagreened. Metasternum, episterna and hind coxae with long, fine, pale yellow setae in punctures; punctures, except on posteromedian metasternal area, separated by their own diameter or less. Abdominal segments with sparse, setiferous punctures arranged in transverse rows medially; punctures more closely and less regularly arranged toward and along lateral margins; setae in punctures generally shorter than those of hind coxae except for some on penultimate abdominal segment; intervals almost smooth. *Legs* with anterior tibiae tridentate; basal hind tarsal segment about three fourths as long as second segment; tarsal claws with upper ramus as broad at base as and longer than lower.

Genitalia (Text-figs. 54 and 55).

FEMALE. Very similar to the *male* but with shorter lamellae to the antennal club.

Type locality: NE. Damaraland (S.A.M.).

Other material examined from: S-W. Africa: Zesfontein (S.A.M.); Kamanjab (S.A.M.); Outjo (S.A.M.); Otjimbumbe (S.A.M.); Ombombo (S.A.M.); Kaoko Otavi (S.A.M.); Narebis (S.A.M.); Beullesport (S.A.M.); Otjikoto Lake; Abachaus, Otjiwarongo Dist. (B.S.S.); Unlocalized (Z.M.B.).

Total material seen: More than 26 examples.

The variation in the degree of obtuseness of the posterior angles of the pronotum in this species has led to its appearing in two places in the key above. The form with almost entirely obsolete hind angles to the pronotum appears to be uncommon, but includes the type specimen.

S. feirana Pér.

Schizonycha feirana Péringuey, 1908, p. 699.

Length 14·5 mm. Breadth 7 mm.

MALE

Derm reddish castaneous. *Head* with labral emargination almost rightangled; anterior clypeal face reflexed medially, but not vertically convex; clypeal carina very feebly arcuate; vertex with a well marked transverse carina which is slightly arcuate when viewed from above; frontal and clypeal punctures elongate; intervals set with micropunctures. *Pronotum* with anterior border strongly sinuate laterally, directed obliquely backward to anterior angles; posterior angles entirely rounded; posterior margin with a distinct raised hind border in front of scutellum; lateral borders set with outstanding setae shorter than basal anterior tarsal segment; surface with transverse, subbasal impunctate areas; disc set with transverse punctures having emarginate anterior borders and separated by more or less their own diameter; punctures more closely set elsewhere, especially anterolaterally where they are slightly scabrose; setae in punctures minute; intervals finely shagreened and set with micropunctures as on head. Scutellum somewhat broader than long and closely punctured anteriorly; intervals finely and faintly shagreened. *Elytra* with punctures emarginate anteriorly and separated by about one diameter; punctures each bearing a minute, white seta; intervals slightly roughened and set with micropunctures; lateral borders with rather short, outstanding setae from bases almost to apical borders. Pygidium transverse; set with rather shallow, annulate punctures, separated by about their own diameter for the most part and bearing minute, white setae; intervals finely shagreened. Metasternum, episterna and hind coxae sparsely setose; setae on anterior half of metasternum much longer than those elsewhere. Abdominal segments with punctures arranged in more or less regular transverse rows, most punctures bearing fine setae, but toward lateral margins, some punctures bear short, squamiform setae; intervals finely shagreened laterally, punctures toward lateral margins asperose. *Legs* with anterior tibiae strongly tridentate; basal hind tarsal segment as long as second; tarsal claws with upper ramus slightly longer than lower and closely applied to it.

Genitalia (Text-figs. 56 and 57).

FEMALE. Unknown to me. According to Péringuey, it differs from the *male* as follows: (*a*) The clypeus is not emarginate anteriorly. (*b*) The clypeal carina is broadly triangular and the transverse carina across the vertex of the head is less well-marked. (*c*) The pronotal punctures are "Variolose", the pronotal disc has an abbreviated longitudinal median impunctate area and the subbasal impunctate areas are less well-marked. (*d*) The elytral punctures are slightly more asperose.

This is an unusually strongly developed sexual dimorphism for a species of *Schizonycha*. Unless the *female* is flightless, it is usually much more like the *male* than is implied by Péringuey in the case of this species. On the face of it the likelihood is that Péringuey described the *female* of quite another species as the *female* of *S. feirana*.

Type locality: Feira, Zambezi River (S.A.M.).

The type specimen is the only example of this species known to me.

S. transvaalica Pér.

Schizonycha transvaalica Péringuey, 1904, p. 208.

Length 11 mm. Breadth 5 mm.

MALE

This species is very closely allied to *S. feirana*, but is smaller. It differs from the latter species as indicated in the key to species and also in that the transverse carina across the vertex of the head is more feebly raised and the fine shagreening of the intervals between the pronotal punctures is stronger.

Genitalia (Text-figs. 58 and 59).

FEMALE. Very similar to the *male*.

Type locality: Between the Zambezi and the Limpopo, S. Rhodesia (S.A.M.).

Other material examined from: S-W Africa: Otjiwarongo (S.A.M.); Windhoek (S.A.M.); Tsumeb (S.A.M.). Bechuanaland: Nata (F.).

Total material seen: 5 examples.

S. languens Pér. (Text-figs. 17, 23 and 51)

Schizonycha languens Péringuey, 1904, p. 234.

Length 10·5–11·5 mm. Breadth 5·5—6 mm.

In general appearance this species is very closely related to *S. ignava* Pér., but differs from it as indicated in the key to species and also in the following respects:

The pronotal punctures are scabrose along the extreme anterior margin of the pronotum only and the setae of the pronotal disc are hardly noticeable; the raised hind border of the pronotum is well marked medially; the elytra are somewhat less coarsely and closely punctured; the squamiform setae of the metepisterna, hind coxae and abdominal segments are much larger than those of the elytra; the basal hind tarsal segment is about two thirds as long as the one following.

Genitalia (Text-figs. 63 and 64).

FEMALE. Very like the *male*, but differs in having the upper ramus of all tarsal claws longer than the lower. The body is broader than that of the *male* and the pygidium is very abruptly and strongly convex at the apex (Text-fig. 51) instead of being evenly and rather shallowly convex over the apical half.

Type locality: Bothaville, Kroonstad, Orange Free State (S.A.M.).

Other material examined from: Transvaal: Pretoria; Potschefstroom (F.); Rustenburg. O.F.S.: Parys (F.). " Int. S. Afr." (no exact locality).

Total material seen: 23 examples.

S. ambigua Pér.

Schizonycha ambigua Péringuey, 1908, p. 681.

Length 10 mm. Breadth 5 mm.

MALE

This species is very closely related to *S. languens* despite Péringuey's remark concerning its relationship with *S. puerilis* and *S. infantilis*.

In fact it may hardly be separated from *languens* other than by the characters given in the key.

Genitalia (Text-figs. 60 and 61).

FEMALE. Unknown.

Type locality: Southern Rhodesia: Plumtree (S.A.M.).

Other materal examined from: Transvaal: Mooiplaats (F.).

The type specimen bears a note saying that the genitalia have been sent to Raffray. Figs. 60 and 61 are drawn from the specimen in the G. Frey Museum, Munich.

Total material seen : 2 examples.

S. ignava Pér.

Schizonycha ignava Péringuey, 1904, p. 234.

Length 8·5–11 mm. Breadth 5–6·25 mm.

MALE

Colour testaceous with head, pronotum and legs darker. *Head* with labral emargination strongly obtuse ; anterior clypeal face moderately convex vertically, with an entire row of setiferous punctures ; clypeal carina arcuate laterally, almost straight medially ; frontoclypeal suture biarcuate ; vertex with a well-marked transverse carina which is forwardly arcuate medially when viewed from above ; clypeus and frons closely punctured ; frontal punctures more closely set than those of clypeus, slightly asperose ; punctures of both clypeus and frons bearing small, but distinct setae. *Pronotum* with anterior border sinuate laterally ; anterior angles obtuse ; posterior angles more or less rounded ; posterior margin with a raised hind border which is almost obliterated medially ; lateral borders with outstanding setae a little shorter than basal anterior tarsal segment ; surface with well marked transverse, subbasal impunctate areas ; surface set with setiferous punctures, obviously asperose anteriorly and on two mediolateral areas, feebly asperose elsewhere ; punctures variably spaced, sometimes separated by less than one diameter, bearing conspicuous, slightly squamiform setae ; intervals finely shagreened. Scutellum transverse (3 : 5) ; coarsely punctate laterally, punctures bearing setae similar to those of pronotum ; intervals finely shagreened. *Elytra* with punctures separated by about their own diameter, each bearing a squamiform seta similar to those of pronotum ; lateral borders with stiff, outstanding setae from bases to about halfway from bases, fringed thence to apicosutural angles with minute setae much smaller than on elytral surfaces. Pygidium transverse, punctures bearing setae slightly smaller than those of elytra ; intervals finely shagreened, less strongly so toward apex. Metasternum, episterna and hind coxae with long, rather coarse, sparsely set setae ; episterna with a few, short, squamiform setae present as well ; intervals between punctures frequently greater than their diameter and finely shagreened. Abdominal segments with punctures more closely set laterally than medially, asperose, some bearing short, squamiform setae similar to those of elytra ; intervals finely shagreened laterally, less strongly so toward midline. *Legs* with anterior tibiae strongly tridentate ; basal hind tarsal segment very slightly shorter than second ; tarsal claws with upper ramus shorter than lower on anterior legs, longer on middle and hind legs.

Genitalia (Text-fig. 62).

FEMALE. Unknown.

Type locality : Lydenburg, Transvaal (S.A.M.).

This species is known to me from the type specimen alone.

S. bohemani n. n.

Schizonycha bohemani n. n. pro.
Schizonycha affinis Péringuey (*nec* Boheman), 1904, p. 233.

Length 12–14 mm. Breadth 5·5–6 mm.

MALE

Colour pale testaceous with head and pronotum slightly darker. *Head* with labral emargination strongly obtuse ; anterior clypeal face feebly convex vertically and with an almost complete row of setiferous punctures along it ; clypeal carina and frontoclypeal suture biarcuate ; basal cephalic carina strongly raised, forwardly arcuate when viewed from above ; clypeus and frons variably punctured, punctures transverse. *Pronotum* (Text-fig. 36) with anterior border sinuate, anterior angles directed obliquely backward ; hind margin with a raised posterior border in front of scutellum ; setae in lateral borders slightly longer than basal anterior tarsal segment ; surface set with irregularly spaced, transversely crescentic punctures, frequently separated by more than their own transverse diameter on disc, more closely set laterally, narrowly scabrose along anterior margin ; each puncture bearing a minute seta ; intervals finely shagreened and with scattered minute punctures as well ; transverse, impunctate, subbasal areas narrow. Scutellum slightly broader than long, closely punctate laterally, setae in punctures as on pronotum ; median area impunctate. *Elytra* with punctures separated by somewhat more than their own diameter, feebly asperose and bearing minute setae ; lateral borders with stiff, outstanding setae from bases to apicosutural angles, setae very small along apical fourth of elytra ; intervals between coarse elytral punctures almost smooth. Pygidium quadrate to elongate, much more strongly convex at apex than elsewhere ; surface irregularly punctured, punctures often faintly marked, usually separated by more than their own diameter and each bearing a minute seta ; intervals finely shagreened. Metasternum, episterna and hind coxae set with non-squamiform setae, longest along anterior metasternal margin ; punctures usually separated by their own diameter or more ; intervals finely shagreened, more obviously so on episterna and hind coxae. Abdominal segments sparsely punctured, especially medially, some punctures bearing long, outstanding setae, others equipped with short, subrecumbent hairs ; intervals with fine shagreening laterally, becoming obsolete toward midline. *Legs* with anterior tibiae strongly tridentate externally ; basal hind tarsal segment somewhat shorter than second (6 : 7) ; upper ramus of anterior tarsal claws shorter and finer than lower, upper ramus of middle and hind claws longer than lower.

Genitalia (Text-Figs. 65 and 66).

FEMALE. Has the upper ramus of the anterior tarsal claws longer than the lower and the pygidium is evenly and rather shallowly convex and bears a shallow, elongate fovea on each side near the apex. The lamellae of the antennal club are shorter in the *female* than in the *male*.

Type locality: Péringuey gives the following localities as the habitat range of this species: Cape Province: Kimberley. Orange Free State: Bothaville. Transvaal: Rustenburg; Lydenburg. Southern Rhodesia: Bulawayo; Salisbury.

Material examined from: Cape Province: Kimberley. Transvaal: Sabie Ridge; Potchefstroom (F.); Johannesburg (F.). S-W. Africa: Hoffnung; Abachaus, Otjiwarongo dist. (B.S.S.). Bechuanaland: Gaberones (F.); Francistown (F.); Ngami (F.). S. Rhodesia: Salisbury; Umtali; Lomagundi (D.A.S.R.); Maduke-Manguendi (D.A.S.R.).

The misinterpretation of *S. affinis* Boheman by Péringuey is treated on page 207 of the present work.

Total material seen: 52 examples.

S. infantilis Pér.

Schizonycha infantilis Péringuey, 1904, p. 207.

Length 10–11 mm. Breadth 5 mm.

MALE

Derm pale testaceous with head and pronotum somewhat darker. *Head* with labral emargination very strongly obtuse; anterior clypeal face vertically plane, its row of setiferous punctures entire; clypeal carina biarcuate, feebly raised; frontoclypeal suture overlain by clypeal carina; transverse carina across vertex sharp, somewhat depressed medially; clypeal and frontal punctures discrete, those of frons sometimes transverse. *Pronotum* similar in outline to that of *S. feirana* (p. 99), but with impuncate, subbasal areas smaller and with intervals between coarse punctures finely shagreened but without micropunctures. *Elytra* with punctures separated by slightly less than their diameter, bearing minute, scarcely squamiform setae; intervals between coarse punctures slightly roughened or very faintly shagreened; lateral borders with stiff, outstanding setae for basal three fourths, setae becoming progressively shorter toward apices. Pygidium quadrate to transverse; variably punctate, sometimes very closely punctured; intervals sometimes less than one diameter and finely shagreened; punctures bearing minute, scarcely squamiform setae. Metasternum, episterna and hind coxae with long, rather sparsely arranged setae in punctures and sometimes with a few, shorter setae on epimera; intervals faintly shagreened toward lateral margins. Abdominal segments with punctures separated by more than one diameter, bearing short setae medially and shorter, appressed setae laterally; intervals finely shagreened. *Legs* with anterior tibiae strongly tridentate, first and second teeth very long; basal hind tarsal segment a little shorter than second; tarsal claws with upper ramus distinctly longer than lower.

Genitalia (Text-figs. 69 and 70).

FEMALE. Uncertain, probably very similar to *male.*

Type locality: Salisbury, S. Rhodesia (S.A.M.).

Other material examined from: Transvaal: Pretoria (Div. Ent.). Natal: Pienaars River; Weenen. S. Rhodesia: Salisbury (B.M. (N.H.), B.S.S. and D.A.S.R.); Umtali; "South of Bulawayo"; Victoria Falls; Mtoko; Lomagundi (D.A.S.R.); Virginia Estate (D.A.S.R.).

Also: "Narygas" and "Cape Rawstone" (S.A.M.)

Total material seen: 24 examples.

S. disputabilis Pér.

Schizonycha disputabilis Péringuey, 1904, p. 209.

Length 9 mm. Breadth 4·5 mm.

MALE

This species is very closely related to *S. parilis* Per. (p. 105), differing from it principally in the respect referred to in the key to species. Also the pronotum of *parilis* is usually more closely punctate and the pygidium is relatively larger and slightly more strongly curved horizontally.

Genitalia (Text-fig. 71).

FEMALE. Unknown.

Type locality: Middle Limpopo, S. Rhodesia (S.A.M.).

Other material examined from: S-W. Africa: Grootfontein (S.A.M.).

Total material seen: 2 examples.

S. parilis Pér.

Schizonycha parilis Péringuey, 1904, p. 208.

Length 10·5–11 mm. Breadth 5–5·25 mm.

MALE

Testaceous. *Head* with labral emargination strongly obtuse; anterior clypeal face vertically plane, with an uninterrupted row of setiferous punctures along it; clypeal carina slightly bisinuate; frontoclypeal suture not strongly marked; transverse carina on vertex clearly marked, forwardly arcuate medially when viewed from above; clypeal punctures elongate; frontal punctures more or less irregular in outline. *Pronotum* with anterior border strongly sinuate laterally, directed obliquely backward to anterior angles; posterior margin with a distinct raised hind border in front of scutellum; lateral borders with outstanding setae as long as basal anterior tarsal segment; surface with indistinctly marked transverse, subbasal impunctate areas; disc set with transverse punctures each containing an M-shaped groove and bearing a minute seta; punctures on disc separated by more or less their own diameter, more closely set toward anterior margin; intervals between punctures finely shagreened. Scutellum transverse; laterally punctate; intervals finely shagreened. *Elytra* with punctures separated by their own diameter on disc, each bearing a minute seta similar to those in pronotal punctures ; intervals between punctures finely and rather irregularly sculptured ; lateral borders set with stiff, outstanding setae from bases to apicosutural angles, setae becoming shorter toward apices. Pygidium transverse ; shallowly convex ; punctures separated by about their own diameter or less toward lateral margins, less closely set toward midline, leaving an almost impunctate, longitudinal median space ; punctures bearing minute setae similar to those of elytra ; intervals finely shagreened. Metasternum, episterna and hind coxae sparsely setose, setae on metasternum longer than those elsewhere ; intervals between punctures smooth. Abdominal segments with punctures more closely set and somewhat asperose toward lateral margins ; punctures bearing recumbent or appressed setae of varying lengths ; intervals very finely and faintly shagreened ; last abdominal segment feebly convex longitudinally. *Legs* with anterior tibiae tridentate, basal tooth clearly indicated although less prominent than median tooth ; basal hind segment about five eighths as long as second ; tarsal claws with upper ramus distinctly longer than and as broad at base as lower ramus.

Genitalia (Text-figs. 72 and 73).

FEMALE : almost indistinguishable from the *male* except for the clypeus which is semicircular in outline and not flattened medially as it is in the *male*.

Type locality : Enkeldoorn, S. Rhodesia (S.A.M.).

Other material examined from : S. Rhodesia : Marandellas ; Salisbury. Transvaal : Middelfontein, nr. Nylstroom.

Total material seen : 15 examples.

S. divulsa Pér.

Schizonycha divulsa Péringuey, 1904, p. 249.

11·5–12 mm. Breadth 5·5 mm.

MALE

Derm testaceous with head and pronotum slightly darker. *Head* with labral emargination very slightly acute ; anterior clypeal face slightly reflexed medially, almost plane vertically, gap in its row of setiferous punctures broad, sometimes partly bridged by non-setiferous punctures ; clypeal carina arcuate, somewhat flattened medially ; frontoclypeal suture clearly visible ; basal cephalic carina fine ; clypeal punctures with internal margins raised ; frontal punctures with anterior margins tuberculate. *Pronotum* with anterior border strongly sinuate, anterior angles directed obliquely backward ; posterior margin with an entire raised hind border ; posterior angles very briefly rounded ; lateral borders set with setae distinctly shorter than basal anterior tarsal segment ; subbasal, transverse, impunctate areas clearly marked ; discal punctures scattered, containing ∩- or M-shaped grooves and bearing pointed, slightly squamiform setae about twice as long as diameter of punctures ; punctures scabrose anteriorly and anterolaterally ; intervals finely shagreened. Scutellum transverse to quadrate ; punctate laterally and apically, punctures almost annulate, bearing setae as on pronotum ; intervals finely shagreened. *Elytra* with punctures separated by slightly less than one diameter, bearing narrow, slightly squamiform setae a little longer than diameter of punctures ; intervals between punctures finely shagreened ; lateral borders with stiff, outstanding setae from bases to apical margins, becoming more sparsely arranged toward apices. Pygidium slightly transverse, strongly convex ; annulate-punctate, separation of punctures usually by more than one diameter, especially apically, punctures bearing short, outstanding setae ; intervals finely shagreened. Metasternum, episterna and hind coxae with setae or squamae in punctures, squamae much larger than those of upper surfaces ; episterna (except for anterior margin) and hind coxae almost entirely set with squamae ; metasternum with fine setae anteriorly, with large squamiform setae elsewhere. Abdominal segments, except for a narrow, longitudinal median area, setoso-punctate, most setae squamiform and more than twice as long as the diameter of their punctures ; intervals finely shagreened. *Legs* with anterior tibiae showing only a faintly marked third, basal external tooth ; basal hind tarsal segment two thirds as long as second ; tarsal claws with upper ramus about half as broad at base as lower and somewhat shorter.

Genitalia (Text-figs. 74 and 75).

FEMALE. Unknown.

Type locality : Rustenburg, Transvaal (S.A.M.).

Other material examined from : Transvaal : Barberton. Péringuey gives Sebakwe, S. Rhodesia, as a locality for this species.

Total material seen : 2 examples.

S. squamosetosa Moser

Schizonycha squamosetosa Moser, 1921, p. 61.

Length 10·5–11·5 mm. Breadth 5–5·5 mm.

MALE

Derm testaceous. *Head* with labral emargination acute ; anterior clypeal face reflexed medially, gap in its row of setiferous punctures rather narrow ; clypeal carina strongly arcuate ; frontoclypeal suture as in *S. matabelana* Pér. (p. 163) ; basal cephalic carina sharp, clearly marked ; clypeal punctures elongate, internal margins sharply impressed ; frontal punctures with their anterior borders tuberculate, less strongly so than in *S. matabelana*. *Pronotum* with anterior border strongly sinuate, sloping obliquely backward toward anterior angles ; posterior margin with an entire raised hind border ; serrate lateral borders set with setae a little shorter than basal anterior tarsal segment ; impunctate, transverse, subbasal areas well marked ; discal punctures shallow, containing ∩-shaped grooves, bearing narrow, squamiform setae about twice as long as the diameter of a puncture ; pronotal punctures progressively more tuberculate toward anterior margin ; intervals smooth. Scutellum almost equilateral ; lateral margins annulate-punctate, punctures with setae as on pronotum ; intervals finely and faintly shagreened. *Elytra* with punctures separated by about their own diameter, bearing squamiform setae similar to those of pronotum ; intervals almost smooth ; lateral borders set with setae of varying length, some near shoulders very long. Pygidium transverse ; strongly convex vertically, flat mediobasally, strongly rounded laterally ; annulate-punctate, punctures separated by more or less one diameter on disc, often by less toward basilateral angles, punctures bearing short, outstanding, slightly squamiform setae for basal two thirds, setae elsewhere longer, non-squamiform ; intervals finely shagreened. Metasternum, episterna and hind coxae with squamiform setae in punctures much larger than those of upper surfaces, replaced in some instances on anterior parts of metasternum by testaceous, non-squamiform setae. Abdominal segments setoso-punctate, punctures separated by more than one diameter as a rule, even laterally ; setae in punctures becoming more markedly squamiform toward lateral margins ; intervals finely but faintly shagreened. *Legs* with anterior tibiae having at most a feebly indicated third external tooth ; basal hind tarsal segment three fifths as long as second ; tarsal claws with upper ramus about half as broad at base as lower and distinctly shorter.

Genitalia (Text-figs. 76 and 77).

FEMALE. Similar to *male* but the antennal club is relatively shorter, the pygidium is concave mediobasally and the basal hind tarsal segment is five sixths as long as the second segment.

Type locality : S. Africa (Dr. Penther) (Z.M.B.).

Other material examined : A single *female* with the same data as the holotype. (Z.M.B.) and S. Rhodesia : Marandellas (D.A.S.R.).

Total material seen : 3 examples.

Note : The genitalia of the type, presumably dissected by Moser, are unusual, being relatively much larger than normal and much darker than might be expected in a pale specimen ; also they are very different from any other known south African species.

S. inops Pér. (Text-fig. 49)

Schizonycha inops Péringuey, 1904, p. 250.

Length 11–13 mm. Breadth 5–6 mm.

MALE

This species is extremely closely related to S. *squamosetosa* Moser (p. 107), differing from it as explained in the key to species.

Genitalia (Text-figs. 78 and 79).

FEMALE. Differs from the *male* by being broader, having the length ratio of the apical spurs of the hind tibiae less than 2 : 1, by the shorter lamellae of the antennal club and by the upper and lower ramus of all the tarsal claws being relatively shorter.

Type Locality : Omuramba-Uamatako, Ovamboland (S.A.M.).

Other material examined from : Bechuanaland : Gaberones (F.). S. Rhodesia : Sebakwe (S.A.M.).

Total material seen : 6 examples.

S. increta Pér.

Schizonycha increta Péringuey, 1904, p. 248.

Length 12–13·25 mm. Breadth 6–7 mm. (After Péringuey.)

MALE

Derm testaceous with head and pronotum castaneous. *Head* with labral emargination acute; anterior clypeal face vertically convex, gap in its row of setiferous punctures moderate; clypeal carina straight medially, almost overlying frontoclypeal suture, angled and running obliquely backward laterally; basal cephalic carina well marked, with a row of small, white setae arising from immediately behind it; clypeal punctures elongate, bearing small, white setae, more conspicuous laterally; frontal punctures slightly asperose, their antero-internal borders feebly raised, bearing larger squamiform setae than clypeal punctures. *Pronotum* (Text-fig. 32) with anterior border feebly sinuate laterally; hind margin with an entire raised posterior border; lateral borders set with setae a little shorter than basal anterior tarsal segment; surface with prominent, transverse, subbasal impunctate areas; disc with variably spaced, almost annulate punctures, asperose along anterior and lateral margins; punctures bearing white, squamiform, pointed setae, larger than those of frons and becoming even larger toward lateral margins; intervals between punctures finely and very faintly shagreened. Scutellum slightly transverse; closely punctate, punctures bearing setae similar to those of pronotum; intervals finely and faintly shagreened. *Elytra*, with punctures separated by almost smooth intervals of more or less one diameter and bearing setae similar to those on pronotal disc; lateral borders with stiff, outstanding setae from bases almost to apicosutural angles, setae long from bases to level of hind coxae, much shorter thence to apical borders. Pygidium slightly transverse; feebly convex; punctures variably spaced, closer basally, bearing setae similar to those of elytral disc, but often a little narrower; intervals finely shagreened. Metasternum, episterna and hind coxae with punctures bearing either long, yellowish hairs or larger, squamiform setae obviously larger than those on elytra; squamae largely confined to episterna, lateral metasternal areas and extreme lateral margins of hind coxae. Abdominal segments progressively more closely punctate toward lateral borders; setae in punctures broader and more squamiform toward lateral borders; intervals almost smooth except along lateral margins. *Legs* with anterior tibiae bidentate; basal hind tarsal segment four fifths as long as the one following; upper ramus of all tarsal claws shorter and more slender than lower, claws shallowly cleft.

Genitalia (Text-fig. 80). (After Péringuey.)

FEMALE. Very similar to *male* but with the lamellae of the antennal club shorter, the basal segment of the hind tarsi as long as the second and the apical abdominal segment strongly convex laterally where it embraces the lateral borders of the pygidium.

Type locality: Péringuey gives Lourenço-Marques and Beira as localities for this species. The example sent to me and labelled as " Type " in Péringuey's hand is labelled " Delagoa Bay ". (= Lourenço-Marques) (S.A.M.).

Other material examined from : Port E. Africa : Zandemela (S.A.M.).

Total material seen : 3 examples.

The type specimen referred to above is a *male*, but no longer has any genitalia. They were presumably removed by Péringuey to have them illustrated. Text-fig. 80 in this paper is a copy of the illustration labelled by Péringuey as being of the *male* genitalia of *S. increta*. I have recently received material from Portuguese East Africa, externally indistinguishable from Péringuey's type specimen, but which has *male* genitalia so different from the illustration given by Péringuey that I hesitate to name it as *S. increta* without reserve. It may be that two species are involved, but as there is no external evidence to support this view, I have provisionally assigned the material to Péringuey's species and reproduce a drawing of the genitalia of the new material, face view and profile, next to the copy of the genitalia illustrated by Péringuey. (Text-figs. 81 and 82.)

The data attached to the new material is as follows : 1 *male* Lourenço-Marques Oct. 1956 (A. J. Barbosa). 1 *female* Matola Dec. 1954 (A. J. Barbosa).

Matola is in the north of Portuguese East Africa and would seem to indicate that *S. increta* may well be an East African species that is sometimes found south of the Zambesi.

S. gracilis Brske.

Schizonycha gracilis Brenske, 1898, p. 368.
Schizonycha gracilis Brske., Moser, 1918, p. 241.
Schizonycha microps Brenske, 1898, p. 376 (**syn. nov.**).
Schizonycha paupercula Péringuey, 1904, p. 235 (**syn. nov.**).
Schizonycha paupercula Pér., Burgeon, 1946, p. 253.
Schizonycha imparilis Moser, 1914, p. 266.
Schizonycha imparilis Moser, 1918, p. 241.

Length 11–12·5 mm. (Burgeon 8–10 mm.). Breadth 5–5·5 mm.

MALE

Derm pale testaceous. *Head* with labral emargination rightangled or very slightly acute ; anterior clypeal face not usually convex vertically, with or without a narrow median gap in its row of setiferous punctures ; anterior edge of clypeus more or less straight medially, oblique laterally ; clypeal carina weakly arcuate, but distinct from frontoclypeal suture ; vertex without a transverse carina ; clypeal punctures close-set, but shallow, their antero-internal borders only being sharply formed ; frontal punctures asperose ; clypeal and frontal punctures bearing small, white, narrowly squamiform setae ; head between eyes strongly narrowed from frontoclypeal suture to vertex. *Pronotum* with anterior border strongly sinuate, anterior angles oblique ; posterior margin with an entire raised hind border between obtuse hind angles ; lateral borders with outstanding setae shorter than basal anterior tarsal segment, less closely and less deeply crenulate along anterior halves than elsewhere ; surface with transverse, subbasal impunctate areas sometimes narrower and more widely separated than usual ; disc with slightly asperose, crescentic punctures usually separated by at least their own diameter ; punctures more strongly asperose along anterior margin ; all punctures bearing white, squamiform setae, those on disc similar to frontal setae, those along lateral margins and sometimes those along anterior margin broader and more conspicuous ; intervals between coarse punctures finely shagreened. Scutellum slightly transverse (20 : 25) ; set with more or less circular punctures separated by from less than one to about two diameters; punctures bearing small, white, squamiform setae similar in size to those of elytra ; intervals finely shagreened. *Elytra* with punctures separated by less than their diameter as a rule, bearing small, squamiform setae usually a little more conspicuous than those of pronotal disc ; intervals finely shagreened ; lateral borders with stiff, outstanding setae confined to between bases and level of hind coxae, often not extending backward as far as hind border of metasternum, setae behind this point very small, becoming very sparse behind level of third abdominal segment. Pygidium transverse (7 : 11) ; closely annulate-punctate, punctures separated by much less than their diameter, bearing broader setae than those of elytra ; intervals almost smooth. Metasternum, episterna and hind coxae with almost all punctures bearing short, broad, appressed squamae, much broader than those of upper surfaces ; a few fine, outstanding setae present on anterior parts of metasternum and a few short, subrecumbent, pale testaceous setae along its midline. Abdominal segments with closely-set, appressed squamae similarly shaped, but a little smaller than those of hind coxae, less closely set medially. *Legs* having the anterior tibiae with the third external tooth very feebly developed in some examples ; basal hind tarsal segment less than half as long as second ; tarsal claws not deeply cleft, with upper ramus about one third as broad as lower and shorter.

Genitalia (Text-figs. 83 and 84).

FEMALE. The antennal club has shorter lamellae than that of the *male*, but in all other respects the two sexes are very similar.

Type locality : Dar es Salaam, Tanganyika T. (Z.M.B.).

Other material examined from : S. Rhodesia : Salisbury ; Sebakwe (S.A.M.).

Tanganyika T. : Dar es Salaam (Z.M.B.) ; Lindi (Z.M.B.)—type of *S. microps* Brske.

Burgeon (1946) gives Elisabethville and Ngaye, both in south-east Belgian Congo as localities for this species.

Total material seen : 9 examples.

The synonymy given above is based upon a personal examination of the holotypes of *S. paupercula*, *S. microps* and *S. gracilis*. Moser (1918) recorded the synonymy of his own species and *S. gracilis* Brenske.

S. frontalis Moser

Schizonycha frontalis Moser, 1921, p. 60.

Length 15–16 mm. Breadth 8 mm.

MALE

Derm brunneotestaceous with head and pronotum somewhat darker. *Head* with labral emargination almost rightangled ; anterior face of clypeus reflexed, vertically convex, gap in its row of setiferous punctures moderate; clypeal carina feebly arcuate, overlying frontoclypeal suture except for median third; basal cephalic carina roughly marked, with a row of close-set, backwardly directed, squamiform setae immediately behind it; clypeal punctures sparse, elongate, internal margins sharp; frontal punctures more or less confined to anterolateral areas, slightly scabrose, bearing conspicuous, white, pointed, squamiform setae; clypeal punctures near lateral margins bearing setae slightly smaller than those of frons. *Pronotum* with anterior border slightly sinuate; posterior margin with an entire raised hind border; posterior angles slightly obtuse; lateral borders set with setae at least as long as basal anterior tarsal segment; disc without transverse, impunctate, subbasal areas; discal punctures each containing a ∩-shaped groove and bearing a conspicuous, white, pointed, squamiform seta, broader than on frons; punctures variably separated, often by less than one diameter, somewhat scabrose along anterior margin; intervals finely shagreened. Scutellum slightly transverse; closely punctate except for apex and mediobasal area; punctures as on pronotum, bearing similar setae; intervals finely shagreened. *Elytra* with punctures separated by slightly less than their own diameter, bearing setae as on scutellum; intervals almost smooth; lateral borders with long, outstanding setae near shoulders, with shorter, curved setae thence to apical borders which are set with even smaller, somewhat squamiform setae. Pygidium very slightly transverse, strongly convex; punctures for the most part separated by from one to two diameters, bearing outstanding, squamiform setae, narrower than on elytra but about as long, apical area more sparsely punctured, punctures here bearing long, outstanding, testaceous setae twice as long or more than setae elsewhere on pygidium; intervals finely shagreened. Metasternum, episterna and hind coxae with most punctures bearing long, fine, yellow setae, large squamiform setae present laterally, particularly on episterna. Abdominal segments almost impunctate medially, punctures numerous laterally, but usually separated by more than one diameter, some bearing long, yellow setae, others large, squamiform setae similar to those on metasternal epimera; intervals finely shagreened, more faintly so toward midline. *Legs* with anterior tibiae having only a very faint indication of a third external tooth; basal hind tarsal segment almost as long as second; upper ramus of tarsal claws about half as broad at base as lower and slightly shorter.

Genitalia (Text-figs. 85 and 86).

FEMALE. Extremely like the *male* but distinguishable by its less convex and less transverse pygidium and by the shorter lamellae of the antennal club.

Type locality: Natal (Z.M.B.).

Other material examined from: Natal: " Zulu " (N.H.R.M.); Mkuzi, Zululand (B.M. (N.H.) and Div. Ent.).

Both the example cited here as the type and the specimen recorded above as from " Zulu " where seen by Moser when he described the species. The Stockholm specimen is a *male* and bears a label " *Schizonycha frontalis* n. sp." together with a " TYPUS " label affixed by the Naturhistoriska Riksmuseum authorities. The *female* example in the Zoologisches Museum, Berlin, bears a label reading " *Schizonycha frontalis* Mos. type ♀ " in Moser's handwriting and also has a " Type " label affixed by the museum authorities. The *male* specimen in Stockholm has had the genitalia extracted and mounted separately. These are deposited in the Zoologisches Museum, Berlin.

In his original description, Moser gave no indication of the sex of his material and did not select a holotype ; it does not seem to have been his habit. All that one can say is that he gave both Natal and " Zulu " as localities, showing that he had seen both the specimens referred to above.

As this species is an unusual one and unlikely to be confused with any other, I do not feel hesitant about accepting the *female* labelled as " type ♀ " by Moser as the holotype of *S. frontalis*. The *male* example must therefore be regarded as a paratype.

S. confinis Pér.

Schizonycha confinis Péringuey, 1904, p. 249.

Length 14·5 mm. Breadth 7 mm.

Male

Derm pale to medium testaceous. *Head* with labral emargination almost rectangular ; anterior clypeal face vertically convex, with a moderately broad gap in its row of setiferous punctures ; clypeal carina biarcuate, overlying frontoclypeal suture ; transverse carina across vertex not clearly marked ; clypeal punctures sparse, slightly elongate ; frontal punctures closely set, strongly asperose, bearing large, squamiform setae. *Pronotum* with anterior border slightly sinuate toward anterior angles ; posterior angles very briefly rounded ; posterior margin with an uninterrupted hind border between hind angles ; crenulate lateral borders with outstanding setae at least slightly shorter than basal anterior tarsal segment ; surface without transverse, subbasal impunctate areas ; disc with punctures separated by from one to two diameters, each containing a ∩-shaped groove and having the anterior border slightly tuberculate ; punctures bearing squamiform setae similar to those of frons ; punctures more strongly tuberculate toward anterior margin of pronotum ; intervals between punctures finely shagreened. Scutellum transverse (2 : 3) ; closely setoso-punctured, setae as on pronotum ; intervals finely shagreened. *Elytra* with punctures separated by their own diameter and bearing squamiform setae as on pronotum ; intervals finely, but very faintly shagreened ; lateral borders with long, outstanding setae for basal two thirds. Pygidium slightly transverse ; closely punctate, punctures usually separated by less than their diameter and bearing squamiform setae similar to those of pronotum, except along apical margin where the setae are longer, outstanding and non-squamiform. Metasternum, episterna and hind coxae setoso-punctate ; anterior parts of metasternum bearing long, outstanding setae, setae elsewhere shorter, squamiform, those of metasternum and episterna being a little larger than those of hind coxae and elytra ; intervals finely and faintly shagreened. Abdominal segments closely punctate medially as well as laterally, punctures bearing conspicuous setae, narrower, though still squamiform toward midline ; intervals finely shagreened. *Legs* with anterior tibiae bidentate externally; basal hind tarsal segment two thirds as long as second; upper ramus of all tarsal claws slightly shorter and distinctly narrower than lower.

Genitalia (Text-fig. 90).

FEMALE. Unknown.

Type locality: Sebakwe, S. Rhodesia (S.A.M.).

Other material examined from: S. Rhodesia: Bent.

Total material seen: 2 examples.

S. peringueyi Dalla Torre

Schizonycha peringueyi Dalle Torre, 1912, p. 156.
Schizonycha vicaria Péringuey (*nec* Kolbe), 1904, p. 251.

Length 15·5 mm. Breadth 8 mm.

MALE

This species is very closely related to S. *nigricornis* Burm. (p. 114) but is larger. It differs from the latter as described in the key and also as follows: the pronotal punctures have more irregularly raised edges and the transverse, impunctate areas of the pronotum are much more clearly marked, almost meeting medially. The scutellum is equilateral and has a longitudinal median sulcus in the type specimen. The basal hind tarsal segment is distinctly shorter than the second and the genitalia (Text-fig. 87) differ.

FEMALE. Unknown.

Type locality: Namaqualand (S.A.M.).

The type specimen is the sole example known to me.

S. nigricornis Burm.

Schizonycha nigricornis Burmeister, 1855, p. 272.
Schizonycha nigricornis Burm., Péringuey, 1904, p. 250.

Length 11·5–13 mm. Breadth 6–7 mm.

MALE

Colour piceous black, feebly shining. *Head* with labral emargination slightly obtuse; anterior clypeal face feebly convex vertically, with a narrow median gap in its row of setiferous punctures; clypeal carina arcuate; frontoclypeal suture clearly visible; vertex with a rather irregularly marked transverse carina which has a groove immediately behind it; clypeal punctures with their internal borders sharply marked; frontal punctures with their anterior borders sharply impressed; clypeal and frontal punctures bearing small, white, squamiform setae. *Pronotum* strongly narrowed from about middle to slightly sinuate anterior border; anterior angles forwardly directed; posterior angles rightangled; posterior margin not or very faintly bordered in front of scutellum; crenulate lateral borders set with outstanding setae shorter than basal anterior tarsal segment; surface with transverse, subbasal impunctate areas usually present, but not always clearly marked; disc sometimes with a longitudinal median impunctate space; elsewhere set with circular punctures, frequently separated by more than one diameter on disc; punctures bearing elliptical, squamiform setae; intervals finely shagreened. Scutellum transverse; punctures confined to lateral margins, similar to those of pronotal disc and bearing similar setae; intervals finely shagreened. *Elytra* with punctures separated by one diameter or a little less, bearing slightly broader squamiform setae than those of pronotum; intervals between punctures finely, but more strongly shagreened than pronotal intervals; lateral borders with short, outstanding setae from bases to apical borders, setae becoming shorter and interspersed with small, squamiform setae toward apices. Pygidium transverse; surface wrinkled, sparsely annulate-punctate, almost impunctate for apical third; punctures bearing squamiform setae somewhat smaller than those of elytra; intervals finely shagreened. Metasternum, episterna and hind coxae set with punctures bearing for the most part broad, squamiform setae larger than those on upper surfaces; setae on anterior margins of metasternum and episterna and near median ends of hind coxae testaceous, non-squamiform; intervals between punctures finely shagreened. Abdominal segments closely punctured, especially laterally, each with a small tubercle on the anterointernal border; punctures toward lateral margins bearing broad, squamiform setae, setae in punctures toward midline smaller and less conspicuous; intervals finely shagreened. *Legs* with anterior tibiae having at most a trace of a third (basal) external tooth, the apical and second teeth being closer together than usual (Text-fig. 41); basal hind tarsal segment slightly shorter than second segment (10 : 13); tarsal claws with upper ramus very much more slender than and a little more than half as long as lower.

Genitalia (Text-figs. 88 and 89).

FEMALE. Unknown.

Type locality: S. Africa (Coll. Ecklon) (Univ. Halle).

Other material examined from: Cape Prov.: Katberg, "Cap b. spei" (B.M. (N.H.), B.S.S. and F.). "S. Africa" (no more exact locality).

Total material seen: 14 examples.

Through the kindness of the authorities of the University at Halle, I have been allowed to examine the material in the Burmeister collection over the name *S. nigricornis*. This material consists of two *male* specimens with the data "Pr. b. sp.". Both are examples of the species interpreted by Péringuey as *S. nigricornis*, both agree with the description of the species given by Burmeister and there is no reason why they should not be part at least of the original material described by Burmeister. I hereby select one of them, to which I have attached a suitable label, as the lectotype of *Schizonycha nigricornis* Burmeister.

S. algoensis Pér.

Schizonycha algoensis Péringuey, 1904, p. 199.
Schizonycha algoa Péringuey, 1904, p. 240 (erratim).

Length 14·5 mm. Breadth 7·5 mm.

MALE

Derm very dark brown. *Head* with angle formed by labral emargination about 110° ; anterior clypeal face vertically convex, reflexed, with a broad median gap in its row of setiferous punctures ; clypeal carina angulate medially ; frontoclypeal suture indistinct ; clypeus sparsely set with slightly elongate punctures ; frons irregularly punctured but punctures not scabrose ; vertex with a well marked transverse carina. *Pronotum* with anterior border not very strongly sinuate laterally, obtuse anterior angles directed obliquely forward ; rightangled posterior angles sharply formed ; posterior margin with a raised hind border in front of scutellum ; lateral borders with outstanding setae as long as basal anterior tarsal segment ; surface with transverse, subbasal impunctate areas and a small impunctate median area as well ; elsewhere with large closely-set punctures each containing an inverted U-shaped groove and bearing a conspicuous squamiform seta ; intervals almost smooth. Scutellum almost equilateral, sides rounded ; disc with a few, coarse squamiferous punctures ; intervals finely shagreened. *Elytra* with punctures usually separated by less than one diameter, bearing squamiform setae slightly smaller than those of pronotum ; intervals between punctures slightly roughened ; lateral borders set with outstanding setae from bases to apical borders. Pygidium transverse ; set with punctures separated by rather more than one diameter and equipped with short, outstanding, slightly squamiform setae ; intervals faintly roughened. Metasternum, episterna and hind coxae with punctures separated by about one diameter, punctures bearing long setae. Abdominal segments with closely set punctures laterally, punctures bearing squamiform setae ; segments with a few setiferous punctures toward midline ; intervals between punctures toward and along lateral margins finely shagreened. *Legs* with anterior tibiae tridentate although with basal tooth much less strongly produced than middle tooth ; basal hind tarsal segment about as long as second ; tarsal claws with upper ramus slightly longer than lower and as broad at base.

Genitalia (Text-fig. 91).

FEMALE. Unknown.

Type locality : Delagoa Bay (S.A.M.).

Other material examined from : Port E. Africa : Delagoa Bay (S.A.M.).

Total material seen : 2 examples.

In his key to the south African species of *Schizonycha*, Péringuey named this species *algoensis*. Later, when he came to describe the species, he altered the name to *algoa*. The illustration of its *male* genitalia again uses the name *algoensis*. Using my privilege as first reviser and assuming that the species was defined by its inclusion in the key, I am adopting the more appropriately formed *algoensis* as the name for this species.

S. infarsa Pér.

Schizonycha infarsa Péringuey, 1904, p. 228.

Length 17 mm. Breadth 10 mm.

FEMALE

Apterous. Colour dark castaneous. *Head* with labral emargination acute; anterior clypeal face vertically plane, reflexed, without a median gap in its row of setiferous punctures; clypeal carina strongly arcuate; frontoclypeal suture well marked, backwardly angled medially; vertex with a rather irregularly raised transverse ridge; clypeal punctures elongate; frontal punctures transverse, their anterior borders sharply formed. *Pronotum* with anterior border evenly emarginate; anterior angles sharp, obtuse; posterior angles almost rightangled; hind margin with a raised posterior border in front of scutellum; crenulate lateral borders set with outstanding setae almost or quite as long as basal anterior tarsal segment; surface with transverse, subbasal impunctate areas not completely without punctures; disc with punctures which are either annulate or which contain an inverted, U-shaped groove and which bear inconspicuous, non-squamiform setae; punctures frequently separated by much more than one diameter; intervals smooth. Scutellum transverse (1 : 2); laterally punctate only; punctures circular and of varying sizes; intervals smooth. *Elytra* set with punctures of varying density, often separated by more than one diameter, especially apicolaterally, in other areas separation may be by less than one diameter; punctures bearing inconspicuous setae as on pronotum; lateral borders set with outstanding setae from bases to level of hind margin of second abdominal segment, glabrous thence to apicosutural angles. Pygidium slightly transverse; coarsely and closely punctured, punctures separated by from one half to one diameter except on and almost impunctate basal area; punctures annulate and bearing small, inconspicuous, non-squamiform setae; intervals finely and rather faintly shagreened. Metasternum, episterna and hind coxae set with setiferous or squamiferous punctures, the latter more especially laterally; intervals faintly roughened. Abdominal segments impunctate medially except for a single transverse row of setiferous punctures on each; pluripunctate laterally, punctures usually bearing a short seta and tuberculate on their anterior borders; intervals finely shagreened along extreme lateral margins, progressively less strongly so toward midline where surface is finely wrinkled. *Legs* with anterior tibiae strongly tridentate; basal hind tarsal segment very slightly shorter than second; upper ramus of all tarsal claws very slightly shorter than lower.

MALE. Unknown.

Type locality: Lydenburg, Transvaal (S.A.M.).

The *female* type specimen is the only example of this species known to me.

S. fallax (Pér.)

Atys fallax Péringuey, 1904, p. 257.
Atys fallax Pér., Andreae, 1933, p. 105, 106.

Length 11·5–12·5 mm. Breadth 6–7 mm.

MALE

Derm testaceous with head and pronotum more reddish in tone. *Head* with labral emargination slightly acute; anterior clypeal face broadly reflexed medially, slightly concave vertically in some examples, usually plane, median gap in its row of setiferous punctures very broad ; clypeal carina strongly arcuate medially, almost straight toward lateral borders ; frontoclypeal suture backwardly angled medially ; vertex without a transverse carina, usually with a band of closely set, small punctures across it ; clypeal punctures elongate, their internal borders sharply formed ; frontal punctures discrete, slightly irregular in outline, anteromedian area of frons impunctate ; frons usually shallowly concave medially. *Pronotum* with anterior border evenly emarginate ; posterior margin without a raised hind border in front of scutellum ; lateral borders faintly crenulate, set with outstanding setae usually shorter than basal anterior tarsal segment ; surface with short, but clearly marked transverse, subbasal impunctate areas ; discal punctures circular, variably separated by from one half to about five diameters, each containing an inverted, U-shaped groove and bearing a minute seta, shorter than the diameter of a puncture ; punctures elsewhere scarcely closer than on disc, often annulate ; intervals smooth. Scutellum almost equilateral, with coarse round punctures apically and laterally ; punctures bearing minute, inconspicuous setae ; intervals smooth except for a few microscopic punctures. *Elytra* with punctures separated by less than one diameter, bearing minute, inconspicuous setae ; intervals almost smooth ; lateral borders with outstanding setae usually confined to near shoulders although some may occur toward midline. Pygidium strongly transverse, moderately and evenly convex ; sparsely annulate-punctate, separation of punctures usually by more than one diameter ; setae of punctures minute ; intervals finely shagreened. Metasternum, episterna and hind coxae sparsely punctate ; setae short, except on anterior parts of metasternum, sparsely arranged ; intervals almost smooth. Abdominal segments sparsely punctate, especially medially ; punctures with anterior borders slightly tuberculate, usually bearing short, appressed setae, but in some instances long, outstanding, yellowish setae ; intervals very finely and faintly shagreened on disc, more noticeably so toward lateral margins. *Legs* with anterior tibiae tridentate ; basal hind tarsal segment half as long as second ; upper ramus of all tarsal claws finer and slightly shorter than lower.

Genitalia (Text-figs. 103 and 104).

FEMALE. Unknown.

Type locality : Salisbury, S. Rhodesia (S.A.M.).

Other material examined from : S. Rhodesia : Salisbury.

Total material seen : 23 examples.

S. villosa Brske. (Text-fig. 50)

Schizonycha villosa Brenske, 1898, p. 367.
Schizonycha villosa Brsk., Péringuey, 1904, p. 227.

Length 13 mm. Breadth 7 mm. (11 × 6 mm.—Péringuey).

MALE

Derm pale testaceous with head and pronotum more reddish in tone. *Head* with labral emargination acute ; anterior face of clypeus vertically plane, with an entire row of setiferous punctures along it ; clypeal carina moderately to strongly arcuate ; frontoclypeal suture backwardly arcuate medially ; vertex with a sharply raised transverse carina ; clypeal punctures elongate, their internal margins sharply formed, bearing minute setae ; frontal punctures slightly asperose, their antero-internal borders being feebly raised, bearing minute setae similar to those of clypeus. *Pronotum* with anterior border evenly emarginate ; posterior margin without a raised hind border in front of scutellum ; lateral borders with outstanding setae considerably longer than basal anterior tarsal segment ; surface without distinct transverse, subbasal, impunctate areas ; punctures on disc each containing an inverted U-shaped groove and bearing a minute, almost white seta ; punctures separated by from one to several diameters ; intervals finely shagreened. Scutellum transverse ; set with slightly asperose punctures, each bearing a seta which is a little more conspicuous than those of pronotum ; intervals finely shagreened ; scutellum normally largely hidden by long, fine, yellow setae protruding from beneath base of pronotum. *Elytra* with punctures separated by from one to two diameters, bearing minute setae similar to those of pronotum ; intervals shining, but not quite smooth ; lateral borders with long, outstanding setae from bases to apical borders, setae diminishing in length toward apical borders. Pygidium strongly transverse ; sparsely and shallowly annulate-punctate, punctures bearing minute, white setae ; intervals very finely and faintly shagreened. Metasternum, episterna and hind coxae with long, fine, densely-set, yellow pubescence. Abdominal segments with conspicuous, sometimes squamiform setae in punctures ; intervals almost smooth medially, finely and very faintly shagreened toward lateral borders. *Legs* with anterior tibiae strongly tridentate ; basal hind tarsal segment about three fifths as long as second ; tarsal claws with upper ramus about as broad at base as lower and almost twice as long.

Genitalia (Text-figs. 92 and 93).

FEMALE. Stated by Péringuey to differ from the *male* in that it has the metasternum, episterna and hind coxae clothed with a few, squamiform setae and in that the basal hind tarsal segment is relatively longer.

Type locality : Natal (Z.M.B.).

Other material examined from : Natal : Frere.

Péringuey gives Maritzburg and Estcourt, Natal as localities for this species.

Total material seen : 3 examples.

S. lebidis n. n.

Schizonycha debilis Péringuey (*nec* Burmeister), 1904, p. 252.

Length 13·5–14·5 mm. Breadth 7·5–8 mm.

MALE

Derm pale testaceous with head and pronotum more reddish. *Head* with labral emargination acute ; anterior clypeal face slightly reflexed, without a median gap in its row of setiferous punctures, vertically plane ; clypeal carina evenly arcuate ;

frontoclypeal suture distinct ; basal cephalic carina irregularly raised ; clypeal punctures elongate, internal borders sharp ; frontal punctures obliquely transverse, their antero-internal borders raised. *Pronotum* with anterior border evenly curved ; posterior margin without a raised hind border in front of scutellum ; posterior angles rightangled ; lateral borders feebly serrate, bearing setae sometimes considerably longer than basal anterior tarsal segment ; surface without clearly marked subbasal impunctate areas ; discal punctures scattered, strongly transverse, bearing short, inconspicuous setae ; punctures along basal margin bearing long, outstanding, testaceous setae ; punctures more closely set and slightly scabrose along extreme anterior margin ; intervals finely shagreened. Scutellum slightly transverse ; punctate laterally ; partly covered by long yellow hairs borne by mesonotal punctures ; intervals finely shagreened. *Elytra* with punctures variably separated, often by more than one diameter, bearing small, inconspicuous setae ; intervals finely shagreened ; lateral borders with long, outstanding setae near shoulders, setae short elsewhere. Pygidium transverse ; almost impunctate ; surface rugulose and finely shagreened. Metasternum, episterna and hind coxae with long, fine, densely set, testaceous to flavous setae. Abdominal segments sparsely punctate, especially medially, punctures with antero-internal borders slightly tuberculate, bearing fine setae of varying lengths ; intervals finely shagreened, more strongly so laterally. *Legs* with anterior tibiae tridentate ; basal hind tarsal segment half as long as second ; upper ramus of tarsal claws one fourth as broad at base as and two thirds as long as lower.

Genitalia (Text-figs. 94 and 95).

FEMALE. Unknown.

Type locality : Transkei, Cape Province is the only locality given by Péringuey.

Material examined from : Transkei (S.A.M.). Transvaal (no exact locality) and " S. Africa ".

Total material seen : 5 examples.

S. debilis Burm.

Schizonycha debilis Burmeister, 1855, p. 267.
Schizonycha caffra Péringuey, 1904, p. 247 (***syn. nov.***).
Schizonycha neutra Péringuey, 1904, p. 229 (***syn. nov.***).

Length 15–16 mm. Breadth 7–9 mm.

MALE

Colour testaceous with head and pronotum darker. *Head* with labral emargination acute ; anterior clypeal face not, or scarcely convex vertically, gap in row of setiferous punctures brief ; anterior clypeal border rounded laterally, truncate medially ; clypeal carina arcuate ; frontoclypeal suture distinct ; frons a little longer in midline than clypeus ; basal cephalic carina a sharp angulation, but scarcely raised as a rule ; frontal punctures irregular, slightly asperose, bearing small, white, squamiform setae ; clypeal punctures shallower and much more sparsely arranged than those of frons, not, or scarcely asperose. *Pronotum* unusually strongly narrowed to anterior border; anterior border evenly curved; anterior angles strongly obtuse, posterior angles slightly obtuse; lateral borders only slightly convergent from middle to hind angles, shallowly sinuate, setae in lateral borders longer than basal anterior tarsal segment; hind border not raised medially; anterior margin narrowly scabroso-punctate, punctures elsewhere not scabrose, usually separated by more than one diameter, especially toward centre of disc, each with a small, recumbent, squamiform seta, slightly more conspicuous than those on head; a few long, outstanding, testaceous setae present in punctures along hind margin; intervals between punctures finely shagreened. Scutellum equilateral or slightly longer than broad, with a few punctures laterally bearing setae slightly longer than diameter of punctures, intervals finely shagreened. *Elytra* with punctures separated by a little more than their diameter, each with a recumbent, small, white, squamiform seta, similar to those of pronotum; intervals with scarcely discernible shagrenation; lateral borders with outstanding, testaceous setae from bases almost to apical borders, setae usually shorter behind level of hind coxae. Pygidium sparsely punctured, setae in punctures similar to those of elytra, intervals finely shagreened. Metasternum, episterna and hind coxae densely set with long, pale testaceous pubescence. Abdominal segments almost impunctate medially, punctures toward lateral margins usually bearing squamiform setae which are slightly more conspicuous than those of elytra, a few long, testaceous, non-squamiform, suberect setae also present, longer and more conspicuous on penultimate segment; intervals very faintly shagreened toward lateral borders. *Legs* with anterior tibiae tridentate; basal hind tarsal segment shorter than second; tarsal claws of anterior legs with upper ramus much shorter and finer than lower, claws of middle and hind tarsi with lower ramus very much shorter than upper and set almost at rightangles to it.

Genitalia (Text-figs. 96 and 97).

FEMALE. This species shows strongly marked sexual dimorphism. The *female* has much reduced wings, a very short antennal club (in contrast to the unusually long club of the *male* which is longer than the other antennal segments combined), has a slightly more acute labral emargination, slightly more obtuse posterior pronotal angles. It has the lateral pronotal borders set with setae shorter than the basal anterior tarsal segment and has a flatter pygidium. Most of the punctures of the metasternum, episterna and hind coxae bear large, appressed, squamiform setae. The tarsal claws of all the legs have the lower ramus much shorter than the upper and less broad at the base.

Type locality: S. Africa (coll. Ecklon) (Univ. Halle).

Other material examined from: Cape Province: Grahamstown (S.A.M.-Holotypes of *S. caffra* and *S. neutra*); Uitenhage; Brak Kloof Farm; Adelaide. Also " Int. S. Africa " (no more detailed locality) and " S. Africa " (other examples from the type series in the Burmeister collection) (Univ. Halle).

Total material seen: 10 examples.

The Burmeister collection at Halle contains three *male* specimens over the name *S. debilis*. They are all of the same species and agree well with Burmeister's description of *S. debilis*. I have no doubt that they belong to the material used by him in its preparation and I hereby select one of them, which I have suitably labelled, as the lectotype of *Schizonycha debilis* Burm. Having had the opportunity of examining Péringuey's type specimens of *S. caffra* and *S. neutra*, I have no doubt that they are conspecific with Burmeister's *S. debilis*, despite the fact that *S. neutra* is based upon a *female* example.

Péringuey misinterpreted Burmeister's *S. debilis* and so inadvertently described a hitherto unknown species under that name. This species is re-described and renamed on page 119 of this paper.

THE "RUGOSA" GROUP

As will be obvious from their treatment in the key to species, these form a closely interlinked assembly which exhibit variation in their external characteristics to an extent rendering it almost impossible to construct a satisfactory key for their identification. On the other hand the *male* genitalia seem to show that a number of species is involved and not a widely distributed, highly variable single species. If more material were available it might be possible to deduce more about the validity of the species set out below on the basis of their geographical distribution.

S. rugosa Brske.

Schizonycha rugosa Brenske, 1898, p. 353.
Schizonycha rugosa Brske., Péringuey, 1904, p. 244.
Schizonycha indotata Péringuey, 1904, p. 245 (***syn. nov.***).

Length 15·5–17 mm. 7·7–8·5 mm.

MALE

Colour varying from pale testaceous to very dark brown, head and pronotum in lighter examples usually darker than elytra. *Head* with labral emargination acute; anterior clypeal face vertically plane, median gap in its row of setiferous punctures variable in length, usually moderately broad; clypeal carina usually evenly arcuate; frontoclypeal suture clearly visible; vertex with a feebly raised transverse carina. *Pronotum* with anterior border feebly sinuate laterally; anterior angles obtuse; posterior angles almost rightangled; posterior margin without a raised hind border in front of scutellum; lateral borders with stiff, outstanding setae usually shorter than basal anterior tarsal segment; surface with well marked transverse, subbasal impunctate areas; disc with coarse, variably spaced punctures, often separated by less than one diameter, containing an inverted U-shaped groove and bearing a small, but distinct, white, squamiform seta about as long as the diameter of a puncture; intervals finely shagreened. Scutellum slightly transverse; closely punctate laterally, each puncture containing an inverted U-shaped groove and bearing a seta similar to or slightly smaller than those on pronotum; intervals finely shagreened. *Elytra* with broad punctures, separated in many instances by less than their diameter, bearing small, white, squamiform setae similar to those of pronotal disc; intervals usually with traces of shagreening; lateral borders with stiff, outstanding setae near shoulders, sometimes extending backward to level of hind coxae or beyond, setae behind this point minute, inconspicuous, recumbent. Pygidium slightly transverse ; convex ; shallowly and sparsely annulate-punctate, punctures bearing minute setae smaller than those in punctures on elytra ; intervals finely shagreened, surface frequently wrinkled. Metasternum, episterna and hind coxae setoso- and squamoso-punctate, squamiform setae more or less confined to posterior half of episterna, posterolateral areas of metasternum and most of hind coxae, variable in extent and number, much larger than any on upper surfaces ; setae on other parts of pectus long, fine, suberect, almost white. Abdominal segments annulate-punctate, more closely so laterally ; punctures bearing either small, squamiform setae or longer, non-squamiform hairs, the former predominating toward the lateral margins ; squamiform setae usually larger than those on elytra, but not as large as those on hind coxae ; intervals finely shagreened, very faintly so toward midline. *Legs* with anterior tibiae tridentate, the basal tooth usually feebly marked ; basal hind tarsal segment at most two thirds as long as second ; tarsal claws with upper ramus slightly less than half as broad at base as lower and distinctly shorter.

Genitalia (Text-fig. 98).

FEMALE. Very like the *male* but the antennal club is composed of distinctly shorter lamellae ; although the basal segment of the hind tarsi is almost as short, relative to the second segment, as it is in the *male*, the upper ramus of the tarsal claws is as long as, or even slightly longer than the lower ramus and only a little finer in construction.

Type locality : Natal (Z.M.B.).

Other material examined from : Natal : Weenen ; Port Natal ; Indaleni ; Pietermaritzburg (B.S.S.) ; unlocalized (B.S.S.). Transvaal : Pietersburg.

Péringuey records Lydenburg, Transvaal and an unlocalized area in S. Rhodesia as localities from which he received *S. indotata*. I have examined the type specimen of *S. indotata* (see below), but it bears no locality label.

Total material seen : 15 examples.

As mentioned above, I have had the opportunity of examining the type specimen of *S. indotata* Pér. I have been able to compare it with the type specimen of *S. rugosa* Brske. and I have no doubt that they are examples of a single species. Péringuey apparently had some doubt as to the validity of *S. indotata* as his type specimen bears a label with the name " *rugosa* " on it.

S. valvata Brske.

Schizonycha valvata Brenske, 1898, p. 353.
Schizonycha valvata Brske., Péringuey, 1904, p. 244.

Length 17·5 mm. Breadth 9 mm.

FEMALE

Colour castaneous with head and pronotum darker.

Péringuey saw the holotype of this species and compared it with his own species *S. noscitata* (p. 125). Through the kindness of Dr. K. Delkeskamp of the Zoologisches

Museum, Berlin, I have seen this specimen also. It is the sole known representative of Brenske's species and is obviously very closely related to both *S. rugosa* and to *S. fatidica* Pér. Indeed it may well be a *female* example of one of these two species. On the other hand the pygidium of *S. valvata* is of an unusual shape, being shallowly concave along the midline, obliquely flattened laterally and impressed toward the basal angles. Also the anterior tibiae are more robust and more obviously tridentate than is usual with either *S. rugosa* or *S. fatidica*.

Until more material becomes available and the identities of the elements of the "*rugosa*" group are better known, I think it best to retain *S. valvata* Brske. as a separate species in view of its characteristic pygidial form. But for this structure and the broader front tibiae, *S. valvata* is almost indistinguishable from a *female* example of *S. rugosa*.

MALE. Unknown.

Type locality: S. Africa (coll. Jekel) (Z.M.B.).

S. fatidica Pér.

Schizonycha fatidica Péringuey, 1904, p. 246.

Length 17–19 mm. Breadth 7·5–9 mm.

MALE

Péringuey differentiates this species from *S. rugosa* (as *S. indotata*) by saying that the clypeus has a sinuate anterior edge, the pronotum has the punctures scabrose along the anterior margin only, those elsewhere being cicatricose. He also refers to an elongate median smooth space on the pronotal disc.

I have examined examples showing the above features which have proved to have genitalia which clearly assigned them to *S. rugosa* Brske. On the other hand it does seem from a series of examples of *S. fatidica* and of *S. rugosa* that the former tends to be a larger and darker species than the latter.

Genitalia (Text-figs. 100 and 101).

Type locality: Grahamstown, Cape Province (S.A.M.).

Other material examined from: Cape Province: Grahamstown; Port St. John, Pondoland; "Cap. b. Spei" (B.S.S.). Zululand: Nagana.

Péringuey also records Kowie, Cape Province as a locality for this species.

Total material seen: 10 examples.

S. elegans Pér. (Text-figs. 15, 30 and 42)

Schizonycha elegans Péringuey, 1904, p. 242.

Length 15–16·5 mm. Breadth 6·5–8 mm.

MALE

Colour generally testaceous with head and pronotum castaneous.

As can be seen from the figures given above, *S. elegans* appears to have a range of size comparable to the lower end of the size range of *S. rugosa*, but below the known range of S. *fatidica*. This is interesting in view of the fact that the genitalia of the present species are almost identical with those of S. *fatidica* whereas they are readily distinguishable from those of S. *rugosa*.

One apparently constant feature of S. *elegans* is a more transverse pygidium than is usual in either S. *rugosa* or S. *fatidica* (5·5–6·8).

Genitalia (Text-fig. 99).

FEMALE. Unknown.

Type locality : Rustenburg, Transvaal (S.A.M.).

Other material examined from : Transvaal : Rustenburg ; Pretoria (B.M. (N.H.), F.) ; Pienaars River ; Potchefstroom (F.). Cape Province : unlocalized (coll. Brinckner).

Total material seen : 10 examples.

S. noscitata Pér.

Schizonycha noscitata Péringuey, 1904, p. 243.

Length 17 mm. Breadth 9 mm.

MALE

" Chestnut brown ; head and prothorax ferrugineous, each puncture on the upper side bears a whitish, small, yet conspicuous hair, the ciliae along the outer margins of the prothorax and of the anterior part of the elytra are long, and the pectus is very pubescent ; club of the antennae flavescent ; frontal part of the head and also the clypeus very closely and deeply punctured, the punctures non-granulose, the former is blunt in the median anterior part, but hardly sinuate, the clypeal carina is very arcuate, and somewhat angular in the middle ; the basal carina is not much raised, and is grooved ; prothorax moderately rounded laterally at about the median part, very little narrowed, and not sinuate thence to the basal angle, covered with irregular, round, cicatricose punctures set somewhat closely along the anterior margin and the sides, but much more scattered and broader in the posterior, and having there a median, smooth, somewhat raised space, and a few smaller similar areas across ; the outer margins are serrate, more strongly so in the anterior than in the posterior part ; scutellum with two irregular lateral rows of punctures ; elytra ampliate laterally from about the median part, the punctures deep ; pygidium with scattered, fairly deep punctures ; abdominal segments as closely and numerously punctured in the median part as on the sides, penultimate one wider than the preceding, last one broad, very swollen ; tarsi long. The claws are missing in my male example."

Genitalia (Text-fig. 102).

FEMALE. Unknown.

Type locality : " Cape Colony (? Namaqualand) " (as recorded by Péringuey).

The example considered by the South African Museum to be the type of S. *noscitata* and made available to me for study is in fact a *female* specimen of S. *profuga* Pér. (p. 167). The species is unknown to me other than from its description and from this evidence I am inclined to think that it ought properly to be placed in the group I have christened the "*rugosa*" group of species. The genitalia, redrawn from Péringuey, are very similar in appearance to those of *S. elegans*, described above.

S. fartula Pér.

Schizonycha fartula Péringuey, 1904, p. 206.
Schizonycha tumida Blanchard (*nec* Cast.), 1850, p. 150 (***syn. nov.***).
Schizonycha tumida Burmeister (*nec* Cast.), 1855, p. 267 (***syn. nov.***).
Schizonycha tumida Péringuey (*nec* Cast.), 1904, p. 225 (***syn. nov.***).

Length 13·5–15 mm. Breadth 7·5–9 mm.

MALE

Colour generally light ferrugineous, sometimes castaneous. *Head* with labral emargination strongly obtuse; anterior face of clypeus vertically convex and with a narrow to moderate median gap in its row of setiferous punctures; anterior edge of clypeus rounded, somewhat flattened medially, but not truncate; clypeal carina shallowly arcuate; frontoclypeal suture also shallowly arcuate, indistinct; frons longer in midline than clypeus; clypeal punctures sparse, irregularly arranged, elongate with their internal borders sharply formed; frontal punctures also irregularly spaced, more closely set than those of clypeus, slightly asperose; head sharply angled at vertex, but without a raised transverse carina there; angulation at vertex feebly arcuate when viewed from above. *Pronotum* with anterior border sinuate laterally; anterior and posterior angles obtuse; lateral borders with outstanding setae longer than basal anterior tarsal segment; hind margin without a raised posterior border in front of scutellum; anterior margin closely scabrosopunctate; surface with two transverse, subbasal impunctate areas; disc usually sparsely annulate-punctate, punctures generally separated by more than their own diameter; setae in punctures minute, inconspicuous; hind margin of pronotum usually bearing a row of sparsely set, long, testaceous, suberect setae; intervals between punctures finely shagreened. Scutellum punctate laterally; interval between puntures finely shagreened. *Elytra* with punctures separated by about their own diameter, rather irregularly spaced, each bearing a minute seta; lateral borders set with stiff, outstanding setae from bases to level of second abdominal segment or slightly beyond; intervals between elytral punctures finely shagreened. Pygidium (Text-fig. 26) transverse (*c.* 25 : 32); set with annulate punctures separated as a rule by more than one diameter and bearing minute setae about as long as the diameter of a puncture; apical border of pygidium distinctly broader than lateral and basal borders; intervals between punctures finely shagreened, usually set with micropunctures as well. Metasternum, episterna and hind coxae usually with long, fine setae in punctures; intervals finely and faintly shagreened. Abdominal segments scabroso-punctate laterally; setae in punctures non-squamiform, of variable length, usually longer than the diameter of a puncture; intervals between punctures finely shagreened. *Legs* with anterior tibiae strongly tridentate; basal hind tarsal segment distinctly shorter than second; tarsal claws with upper ramus longer than lower, emarginate beneath apex; lower ramus of claws closely applied to upper.

Genitalia (Text-figs. 105 and 106).

FEMALE. More rounded in form than the *male*; with shorter lamellae to the antennal club; with the basal hind tarsal segment as long as the second segment; with the rami of the tarsal claws usually somewhat divergent and with the pubescence of the metasternum, episterna and hind coxae usually somewhat less conspicuous than in the *male*.

Type locality: Stellenbosch, Cape Province (S.A.M.).

Other material examined from: Cape Prov.: Somerset West (S.A.M.); Stellenbosch (S.A.M. and B.M. (N.H.)); "Cape of Good Hope" (B.S.S., F., Z.M.B., B.M. (N.H.)); Darling (S.A.M.). Natal: Port Natal (B.S.S.).

Péringuey described S. *fartula* from the *female* alone. His interpretation of S.*t umida* Cast. (p. 74) included both sexes of a species which, upon examination of the material, proves to be conspecific with the type specimen of S. *fartula*.

The material in the Burmeister collection over the name S. *tumida* agrees with that author's published interpretation of the species. It consists of two *males* and one *female* which again are examples of S. *fartula* Pér.

The actual specimen catalogued by Blanchard (1850) as S. *tumida* Cast. is still in the collections of the Museum d'Histoire naturelle, Paris and this too is an example of S. *fartula* Pér. (*female*).

Thus, in the absence of definite proof as to the identity of S. *tumida* Cast. (p. 74), there is a single species given that name by Blanchard, Burmeister and Péringuey and which was also redescribed by Péringuey under a new name.

Assuming the true S. *tumida* Cast. to be different from the later interpretation of it, there is a S. *tumida* of authors, the first available name for which is a junior synonym, S. *fartula* Pér.

S. crinita Brske.

Schizonycha crinita Brenske, 1898, p. 356.
Schizonycha crinita Brsk., Péringuey, 1904, p. 204.

Length 14 mm. (Péringuey gives 15–16 mm.). Breadth 8 mm.

FEMALE

Derm pale testaceous with head and pronotum darker. *Head* with labral emargination obtuse (*c.* 120°); anterior clypeal face strongly convex vertically, with a median gap in its row of setiferous punctures which is partially bridged by non-setiferous punctures; anterior edge of clypeus shallowly biarcuate, directed obliquely backward laterally toward eyes; clypeal carina feebly arcuate, bluntly angled medially; vertex without a transverse carina, not sharply angled, set with very closely arranged punctures which are distinctly smaller than those of frons; clypeal punctures frequently slightly elongate, their borders sharply formed; frontal punctures almost circular or slightly transverse, separated by about one diameter or less, more regularly and closely arranged toward eyes; clypeus with a vestigial longitudinal median carina arising from anterior edge. *Pronotum* with anterior border strongly sinuate laterally, directed obliquely backward to anterior angles; posterior margin without a raised hind border in front of scutellum; lateral borders with outstanding setae longer than basal anterior tarsal segment; surface with a transverse, subbasal, impunctate space on either side and with a more or less well-defined longitudinal median impunctate area on disc; discal punctures smaller and shallower than those of frons, transverse, separated by more than one transverse diameter as a rule and bearing minute, scarcely discernible setae, about as long as the longitudinal diameter of a puncture; punctures along extreme anterior margin asperose; punctures anterior and posterior borders bearing long, erect setae similar to those along lateral borders; intervals between punctures of disc and margins with faint, fine, more or less complete shagreening. Scutellum transverse (9 : 16); with a very few, scattered punctures on either side of midline; surface finely shagreened. *Elytra* with punctures separated by slightly more than one diameter as a rule, bearing minute setae similar to those of pronotum; intervals with fine, faint, incomplete microsculpture; lateral borders fringed with outstanding setae from bases to apical borders, those near shoulders very long, setae becoming shorter toward apices. Pygidium almost quadrate (13 : 15); feebly convex; set with small, scattered punctures separated by up to four diameters or more and bearing minute setae about as long as the diameter of a puncture; intervals finely shagreened. Metasternum, episterna and hind coxae densely set with long, fine, pale yellow hairs. Abdominal segments two, three and four each with a single row of punctures across the disc; punctures bearing setae almost half as long as segments; segments pluripunctate laterally, punctures here usually bearing setae similar to those of discs of segments, but with a few punctures bearing short, white squamiform setae; penultimate segment with irregularly spaced, asperose punctures across disc as well as along lateral margins, all punctures bearing fine setae of varying lengths; intervals finely shagreened, very faintly so toward midline. *Legs* with anterior tibiae strongly tridentate; basal hind tarsal segment and second segment subequal; tarsal claws with upper ramus almost twice as long as lower and strongly emarginate beneath apex.

MALE. Unknown.

Type locality: Cape of Good Hope (Z.M.B.).

I have seen only the type specimen of this species and have been unable to relate it to any known *male*. The setae along the anterior and posterior borders of the pronotum are peculiar and would seem to indicate a close relationship with *Trichoschiza* Moser. In general appearance *S. crinita* resembles *S. ciliata* Burm. (p. 146), but the latter species has a well-marked longitudinal median clypeal carina, has no setae along the anterior and posterior borders of the pronotum, has the labral emargination almost or quite rightangled and has much shorter setae in the punctures across the discs of the abdominal segments.

S. dissensa **Pér.**

Schizonycha dissensa Péringuey, 1904, p. 227.

Length 12–13 mm. Breadth 7–8 mm.

MALE

Colour varying from dark red-brown to black, surface not very shining. *Head* with labral emargination slightly obtuse ; anterior face of clypeus vertically convex, usually with a narrow median gap in its row of setiferous punctures ; clypeal carina feebly angled medially ; head sharply angled at vertex and with a vaguely indicated transverse carina on vertex ; clypeal punctures elongate ; frontal punctures closely and irregularly arranged, somewhat scabrose ; clypeus with a longitudinal median carina arising from middle of anterior edge and continuing backward to meet middle of clypeal carina. *Pronotum* with anterior border sinuate toward obtuse, but forwardly directed anterior angles ; posterior angles obtuse but briefly rounded ; lateral borders with outstanding setae as long as or longer than basal anterior tarsal segment ; hind margin without a raised posterior border in front of scutellum but with a row of long, upstanding setae similar to those along lateral borders ; surface with a longitudinal median and two transverse, subbasal impunctate areas ; elsewhere closely punctured, punctures more closely set and slightly scabrose toward anterior border ; punctures bearing minute, scarcely discernible setae ; intervals between punctures finely, but strongly shagreened. Scutellum transverse, rounded apically ; set with a few punctures on either side of midline ; intervals finely shagreened. *Elytra* unusually depressed ; punctures of disc separated by their own diameter or more, rather irregularly arranged, each bearing a minute seta ; intervals between punctures finely, but strongly shagreened ; lateral borders set with stiff, outstanding setae from bases to, or almost to apicosutural angles ; epipleura (Text-fig. 28) not inflected along apical borders, but vertical. Pygidium transverse (5 : 7) ; annulate-punctate, with punctures a little more closely set on apical half ; intervals finely shagreened. Metasternum, episterna and hind coxae with closely set punctures bearing long, testaceous setae. Abdominal segments with a row of asperose, setiferous punctures across each as well as irregularly spaced, non-asperose punctures each of which bears a minute, almost colourless seta ; intervals finely shagreened, less strongly so toward midline. *Legs* with anterior tibiae strongly tridentate ; basal hind tarsal segment slightly shorter than second segment ; tarsal claws strongly curved, deeply cleft, with the upper ramus distinctly longer than the lower ramus.

Genitalia (Text-figs. 107 and 108).

FEMALE. Unknown to me. Péringuey records that the basal hind tarsal segment is longer than the second segment and that the tarsi as a whole are shorter in the *female*, but does not give any other sexual differences.

Type locality : Cape Province (no exact locality) (S.A.M.).

Other material examined from : The only other example of this species known to me is a *male* in the British Museum (Nat. Hist.) which is labelled " Nov. Holl.", an obviously incorrect locality.

S. unicolor (Herbst)

Melolontha unicolor Herbst, 1786, p. 154.
Melolontha unicolor Herbst, 1790, p. 156.
Melolontha unicolor Herbst, Schönherr, 1817, p. 172.
Schizonycha unicolor (Herbst), Blanchard, 1850, p. 149.

Schizonycha unicolor (Herbst), Lacordaire, 1856, p. 289.
Schizonycha unicolor (Herbst), Burmeister, 1855, p. 267.
Schizonycha unicolor (Herbst), Péringuey, 1904, p. 206.

Length 12·5–15 mm. Breadth 7–8 mm.

MALE

Derm reddish-castaneous, moderately shining ; head and limbs darker in some examples. *Head* with labral emargination very slightly obtuse ; anterior clypeal face vertically convex, with a narrow median gap in its row of setiferous punctures ; anterior edge of clypeus feebly biarcuate ; clypeal carina angled medially ; vertex sharply angled ; clypeus with a longitudinal median carina arising from anterior edge ; clypeal punctures elongate, sparsely arranged ; frontal punctures elongate or obliquely transverse, more closely arranged than those of clypeus, bearing minute, white setae. *Pronotum* with anterior border slightly sinuate laterally, sloping obliquely backward toward anterior angles ; posterior angles obtuse, very briefly rounded ; outstanding setae along lateral borders longer than basal anterior tarsal segment ; hind margin without a raised posterior border, but set with upstanding setae in front of scutellum similar to those along lateral borders ; surface with two transverse, subbasal impunctate areas and a vaguely indicated longitudinal median impunctate area ; punctures of disc variable in size, separated by from less than one to several diameters and bearing minute, white setae about as long as the diameter of a puncture ; punctures more closely and regularly spaced along anterior margin ; intervals between punctures finely shagreened. Scutellum twice as broad as long ; set with setiferous punctures laterally, some punctures bearing long, testaceous setae, others short, white hairs ; intervals between punctures finely shagreened. *Elytra* (Text-fig. 27) with punctures separated by about one diameter, bearing setae scarcely more conspicuous than those of pronotum ; intervals between punctures finely shagreened ; lateral borders set with stiff, outstanding setae from bases to at least the level of the fourth abdominal segment. Pygidium almost quadrate ; shallowly but more or less evenly convex ; set with shallow, rather sparsely arranged punctures bearing minute setae ; intervals finely shagreened, but rather less strongly so than elytral intervals. Metasternum, episterna and hind coxae with long, fine, yellowish-testaceous setae in punctures. Abdominal segments each with a single transverse row of punctures bearing long, testaceous setae as well as numerous irregularly arranged punctures bearing minute, white hairs, not or scarcely longer than the diameter of a puncture ; fifth abdominal segment with punctures bearing long setae less regularly arranged, not in a single transverse row ; intervals between punctures finely shagreened, less strongly so toward midline. *Legs* with anterior tibiae strongly tridentate ; basal hind tarsal segment very slightly shorter than second segment ; tarsal claws with upper ramus longer than lower and emarginate beneath apex.

Genitalia (Text-figs. 109 and 110).

FEMALE. Differs from the *male* in having reduced wings, being more rounded in outline, in that the setae along the lateral borders of the elytra do not extend backward beyond the level of the second abdominal segment, in that the basal hind tarsal segment is very slightly longer than the second segment and the setae of the hind coxae are shorter and more sparsely arranged than those of the metasternum and metepisterna.

Type locality : Cape of Good Hope (Z.M.B.).

Other material examined from : Cape of Good Hope (Univ. Halle).

In 1786, Herbst described *Melolontha unicolor,* stating it to be an East Indian species. Four years later he published another description under the same name, this time giving the locality as " Cap ". The two descriptions differ slightly in detail, but with the second there is a reference to the 1786 definition of *M. unicolor.* This can only be taken to mean that Herbst thought he was redescribing his earlier species. Either he changed his mind as to the origin of the material, or he thought that the species occurred in both localities. If the latter were true it is surprising that he did not give both localities when publishing the second description. At least one other species described by Herbst in 1786 as from the East Indies appears in the 1790 publication as being from the " Cap ". This seems to support the theory that he discovered his earlier locality record to be incorrect and altered it for the redescription.

The slight differences between the two descriptions could be due to a *male* forming the basis for the first and a *female* for the second. On the other hand the discrepancies consist of characters mentioned in the second report, but omitted from the first, so the descriptions could be of the same insect. Certainly the figure accompanying the first description appears to be a *female.* Beyond the variation in locality and without there being two sets of material known to have been used by Herbst in preparing his descriptions, there is no evidence to show that more than one species was involved.

It is proposed here to adopt the view, previously accepted by all authors other than Gmelin in the 13th edition of the *Systema Naturae,* that Herbst described a single species as *Melolontha unicolor* in 1786, redescribed it in 1790, at the same time correcting his earlier reference to its distribution.

There is thus a south African species *Melolontha unicolor* Herbst (1786) which was transferred to *Schizonycha* Dejean by Blanchard in 1850.

Subsequent to the second date, only two workers have made any attempt to interpret the species. Péringuey (1904) was uncertain of its identity and tentatively synonymized with his own species *S. fartula* (p. 126). Burmeister (1855) was more positive in his attitude, interpreting *S. unicolor* as a large, broad species, distinguished from others of similar size by its unusually large head.

The Moser collection in the Zoologisches Museum, Berlin, contains an old *female* specimen which has been labelled as *Schizonycha unicolor* Herbst by Blanchard. This example has been loaned to me by Dr. Delkeskamp with the suggestion that it ought to be regarded as the type of Herbst's species. Presumably it was accepted by Blanchard as an authentic specimen of *Melolontha unicolor* Herbst and, apart from its being a little smaller than Herbst would seem to indicate, there is nothing to prevent it being material upon which the description of *unicolor* was based. Certainly it agrees very well with the figure of the species given by Herbst in 1786. The suggestion made by Dr. Delkeskamp has been adopted in the present work.

The material identified as *S. unicolor* in the Burmeister collection consists of two *female* examples of *S. fartula* Pér. (p126.) and two *male* specimens of another species. Although the latter are larger than the *female* type specimen referred to above, I am sure that they are conspecific with it. The description of the *male* of *S. unicolor* and the figure of its genitalia are based on these two specimens.

S. hybrida (Pér.)

Atys hybrida Péringuey, 1904, p. 253.

Length 10–12 mm. Breadth 5·5–6 mm.

MALE

Colour generally testaceous with head and pronotum more reddish. *Head* with labral emargination strongly obtuse ; anterior clypeal face vertically convex and with a complete row of setiferous punctures along it ; anterior edge of clypeus semicircular or sometimes briefly truncated medially ; clypeal carina biarcuate ; frontoclypeal suture also biarcuate and angled medially ; frons as long as clypeus in midline, irregularly punctured ; clypeus set with more or less elongate punctures bearing small, narrowly squamiform setae ; basal cephalic carina well marked. *Pronotum* with anterior border sinuate ; anterior and posterior angles obtuse, posterior angles briefly rounded ; lateral borders feebly serrate, setae along them about as long as basal anterior tarsal segment ; hind margin without a raised posterior border in front of scutellum ; disc set with crescentic punctures, more closely set and somewhat scabrose anteriorly, punctures bearing small, subrecumbent, slightly squamiform setae ; two subbasal, transverse impunctate areas present ; intervals faintly and finely shagreened. Scutellum with punctures bearing squamiform setae similar to those on pronotum ; intervals more strongly shagreened than pronotal intervals. *Elytra* with punctures separated by about their own diameter, bearing squamiform setae similar to those on pronotum ; intervals very faintly roughened ; lateral borders with long, outstanding setae from bases to level of second abdominal segment, setae behind this point very small, white, narrowly squamiform. Pygidium slightly transverse ; sparsely punctured, punctures a little more closely set toward basal angles ; intervals similarly sculptured to those of scutellum. Metasternum, episterna and hind coxae with short, sparse, outstanding setae on the first and last, a mixture of short setae and subrecumbent, slightly squamiform setae present on episterna. Abdominal segments with recumbent, squamiform setae, slightly more conspicuous than those of elytra ; a few long bristles present also, especially on penultimate segment ; intervals finely and faintly shagreened. *Legs* with anterior titiae strongly tridentate ; basal hind tarsal segment shorter than second ; tarsal claws with upper ramus slightly longer than lower, upper ramus slightly emarginate beneath apex.

Genitalia (Text-figs. 111 and 112).

FEMALE. Very similar to the *male*, but the lamellae of the antennal club are shorter, the pygidium is less convex and the basal hind tarsal segment is as long as the one following.

Type locality : Newcastle, Transvaal (S.A.M.).

Other material examined from : Transvaal : Pretoria (B.M. (N.H.), F. and Div. Ent.) ; Barberton ; Mooiplaats (F.) ; Potchefstroom (F.) ; Kruger National Park ; Johannesburg (F.) ; Rustenburg.

Total material seen : 38 examples.

S. mediastina Pér.

Schizonycha mediastina Péringuey, 1904, p. 209.

Length 11–11·5 mm. Breadth 5·5 mm.

MALE

Colour fuscous with elytra somewhat lighter. *Head* with labral emargination strongly obtuse ; anterior clypeal face convex vertically, its row of setiferous punctures entire ; anterior edge of clypeus truncate medially ; clypeal carina arcuate, usually not strongly raised ; frontoclypeal suture not distinct ; frons slightly longer in midline than clypeus ; basal cephalic carina well-marked, punctate behind, sometimes forwardly produced medially ; frontal and clypeal punctures large, closely set, those of frons slightly scabrose. *Pronotum* with anterior border strongly sinuate, anterior angles obtuse ; posterior angles almost completely rounded; hind margin without a raised posterior border medially ; lateral borders strongly serrate, their setae usually slightly shorter than basal anterior tarsal segment ; disc with annulate punctures, separated by from less than one to several diameters, punctures somewhat scabrose along anterior and lateral margins, bearing small, white, squamiform setae, setae larger and more conspicuous along lateral margins ; two well-marked, transverse, subbasal, impunctate areas present ; intervals finely, but distinctly shagreened. Scutellum slightly transverse, variably punctate, usually with a few punctures anterolaterally, but sometimes impunctate ; intervals finely shagreened. *Elytra* with punctures separated by about their own diameter, each bearing a small, squamiform setae as long as, or slightly longer than the diameter of a puncture ; intervals more coarsely and strongly shagreened than on pronotum ; lateral borders with long, outstanding, testaceous setae near shoulders, elsewhere with minute, whitish setae. Pygidium very shallowly annulate-punctate, each puncture bearing a squamiform seta similar to those of elytra ; intervals finely shagreened. Metasternum, episterna and hind coxae with, for the most part, large, squamiform setae in punctures, anterior areas of metasternum with long, testaceous, non-squamiform setae. Abdominal segments with appressed, squamiform setae in punctures everywhere except for a narrow median area, setae variable in size, mostly about as large as those on metasternum, some smaller, but always distinctly larger than those of upper surfaces ; intervals finely shagreened ; a few, outstanding, non-squamiform setae also present on abdominal segments. *Legs* with anterior tibiae strongly tridentate ; basal hind tarsal segment about three fourths as long as second ; femora and tibiae with squamiform setae as well as outstanding bristles ; tarsal claws (Text-fig. 14) with lower ramus less than half as long as upper and less robust at base.

Genitalia (Text-figs. 113 and 114).

FEMALE. This species is known from the *male* only.

Type locality: S. Africa (no exact locality) (S.A.M.).

Other material examined from: Cape Province: Deelfontein; "Cap" (Krebs.) (Z.M.B.); Nouport (F.).

Total material seen: 14 examples.

S. insuesa Pér.

Schizonycha insuesa Péringuey, 1904, p. 212.

Length 12 mm. Breadth 6 mm.

MALE

A description of this species would correspond almost exactly with one of *S. barda* Burm. (p. 135) except for the characters mentioned in the key to species and for the points referred to below.

In *S. insuesa* the clypeal carina is slightly more strongly raised. The setae along the lateral borders of the pronotum are relatively longer, being as long as, or slightly longer than the basal anterior tarsal segment. The scutellum of the type specimen, the only example of the species known to me, has a longitudinal median sulcus. The pygidium is damaged in the holotype. The metasternum, episterna and hind coxae are set with long, though sparse setae and not with merely a few, short, recumbent, squamiform setae as is the case in *S. barda*.

Genitalia (Text-fig. 115) (after Péringuey as the type specimen no longer has any genitalia).

FEMALE. Unknown.

Type locality: Cape Province (no exact locality) (S.A.M.).

The type is the sole example of this species known to me.

S. puerilis Pér.

Schizonycha puerilis Péringuey, 1904, p. 209.

Length 9·5–10 mm. Breadth 4·75 mm.

MALE

Derm pale yellowish testaceous with head and pronotum slightly darker. *Head* with labral emargination (Text-fig. 19) strongly obtuse; anterior face of clypeus feebly convex vertically, without a gap in its row of setiferous punctures; anterior edge of clypeus arcuate, somewhat flattened medially; clypeal carina feebly arcuate, more or less overlying frontoclypeal suture except near middle; a very vaguely indicated basal cephalic carina present; clypeal punctures elongate; frontal punctures obliquely transverse, slightly asperose; both frontal and clypeal punctures bearing minute setae. *Pronotum* (Text-fig. 35) with anterior border sinuate laterally, but anterior angles not, or scarcely directed obliquely backward; posterior angles strongly obtuse ; posterior margin without a raised hind border in front of scutellum ; setae along lateral pronotal borders shorter than basal anterior tarsal segment ; disc with transverse, subbasal, impunctate areas not clearly marked ; punctures of disc slightly transverse, variably separated by from less than one to several diameters, bearing minute setae similar to those on head ; intervals finely, but distinctly shagreened. Scutellum slightly transverse, with a few scattered, circular punctures bearing setae similar to those of pronotum ; intervals almost smooth. *Elytra* with punctures separated by somewhat more than their diameter, bearing setae as small as those on pronotum ; intervals finely and rather faintly shagreened ; lateral borders with stiff, outstanding setae from bases to about level of first abdominal segment. Pygidium feebly transverse, moderately convex ; shallowly and sparsely punctured, punctures usually separated by more than their own diameter, bearing minute, inconspicuous setae ; intervals finely shagreened. Metasternum, episterna and hind coxae rather sparsely setoso-punctate ; punctures on anterior parts of metasternum with long, fine, outstanding setae ; setae elsewhere much shorter, slightly coarser, more or less appressed. Abdominal segments with sparsely set punctures bearing setae of different lengths, similar to those of metasternum and epimera ; intervals faintly and finely shagreened laterally, almost smooth toward midline. *Legs* with anterior tibiae strongly tridentate ; basal hind tarsal segment a little shorter than second ; upper ramus of all tarsal claws broader and more than twice as long as lower.

Genitalia (Text-figs. 67 and 68).

FEMALE. Unknown to me, but Péringuey states that its distinguishing feature lies in the semicircular anterior edge to the clypeus.

Type locality : The specimen sent to me as the type and whose authenticity I have no reason to doubt, bears the data " Kimberley 1884 ". This locality is not among those listed by Péringuey for the species (S.A.M.).

Other material examined from : Transvaal : Schweizer Reineke.

Other localities given by Péringuey are : Cape Prov. : Griqualand West ; Kuruman ; Bechuanaland.

Total material seen : 3 examples.

S. barda Burm.

Schizonycha barda Burmeister, 1855, p. 273.
Schizonycha barda Burm., Péringuey, 1904, p. 218.

Length 10·7–13 mm. Breadth 5·5–7 mm.

MALE

Colour usually almost black. *Head* (Text-fig. 20) with labral emargination very strongly obtuse ; anterior clypeal face almost plane vertically and with a complete, although sometimes irregularly arranged row of setiferous punctures along it ; anterior border of clypeus very broadly truncated medially ; clypeal carina shallowly raised, feebly arcuate ; basal cephalic carina variable, usually well marked ; clypeal punctures shallow, their internal margins only sharply formed ; frontal punctures shallow, more closely set laterally than medially, antero-internal margins sharply formed; both clypeus and frons with minute, recumbent, almost white setae in punctures. *Pronotum* with anterior border sinuate laterally; anterior and posterior angles obtuse; posterior margin without a raised hind border in front of scutellum; lateral borders bearing outstanding setae shorter than basal anterior tarsal segment; surface with transverse, subbasal impunctate areas well marked; disc with more or less circular, shallow punctures bearing minute setae similar to those of head, punctures either containing a ∩-shaped groove or annulate; intervals finely shagreened. Scutellum variably punctured, sometimes impunctate; intervals finely shagreened. *Elytra* with punctures usually separated by more than their diameter, bearing minute punctures similar to those of pronotal punctures; intervals finely, but distinctly shagreened; lateral borders with a few long, outstanding setae near bases, setae elsewhere short, white, more or less appressed. Pygidium very faintly punctured, punctures separated by several diameters; intervals finely shagreened; pygidium feebly convex in profile. Metasternum, episterna and hind coxae with short, sparsely arranged setae anteriorly, setae on posterior parts of metasternum, episterna and on hind coxae shorter than elsewhere, often white and narrowly squamiform. Abdominal segments very sparsely punctate medially, punctures more closely set toward lateral borders; punctures bearing either short, white, appressed, narrowly squamiform setae or slightly longer, fine, non-squamiform setae; the squamiform setae are of varying length, some longer, others shorter than squamiform setae of metepisterna; intervals finely shagreened toward lateral borders, progressively less strongly so toward middle. *Legs* (Text-fig. 45) with anterior tibiae strongly tridentate; basal hind tarsal segment about three fourths as long as second; tarsal claws with lower ramus very short, set at rightangles to the upper ramus (Text-fig. 13).

Genitalia (Text-figs. 116 and 117).

FEMALE. Differs from the *male* in having the body outline oval instead of oblong. It is apterous and generally larger than the *male* The tarsal claws of the *female* are more stoutly built, especially the short, downwardly directed lower ramus.

Type locality: Natal Bay (coll. Drege) (Univ. Halle).

Other material examined from: Cape Province: Dunbrody, Redhouse (S.A.M.); no exact locality (Fry coll.).

Péringuey gives Uitenhage, Cape Province as a locality for *S. barda*.

Total material seen: 8 examples.

I have been allowed to examine the material named as *S. barda* in the Burmeister collection. It consists of two *males*, both of which agree with the original description of the species and with Péringuey's interpretation of it. I hereby select one of them, which I have labelled appropriately, as the lectotype of *Schizonycha barda* Burmeister.

S. effeta Pér.

Schizonycha effeta Péringuey, 1908, p. 700.

Length 10–11 mm. Breadth 5 mm.

MALE

This species is very closely related indeed to *S. barda* Burm. Externally the two species are almost indistinguishable but for the colour of *S. effeta* which is reddish-testaceous and for the shape of the pygidium which in the latter species is markedly convex longitudinally. Also in *S. effeta* the anterior border of the pronotum is more strongly sinuate toward the anterior angles than it is in the case of *S. barda*.

Genitalia (Text-figs. 118 and 119).

FEMALE. Unknown.

Type locality : Pietersburg, Transvaal (S.A.M.).

Other material examined from : Cape Province : Willowmore (F.).

When describing this species, Péringuey referred to *S. transvaalica* for a comparison of external features and used *S. furva* (= *S. affinis* Boh.) as a guide to the shape of the *male* genitalia. He did not mention the fact that *S. effeta* is almost inseparable externally from *S. barda* other than by colour and a few minor details. The genitalia of the two species are quite distinct so there is no difficulty in separating *male* examples.

S. windhoekensis sp. n.

Length 11–11·5 mm. Breadth 5–5·5 mm.

MALE

Pale to medium testaceous with head and pronotum usually a little more red in colour. *Head* with labral emargination slightly obtuse, middle of emargination rounded ; anterior face of clypeus convex vertically, with an entire row of setiferous punctures along it ; anterior clypeal edge shallowly emarginate medially, broadly rounded laterally ; clypeal carina rather shallowly arcuate ; frontoclypeal suture visible although almost overlain by carina laterally ; vertex without a transverse carina, not sharply angled ; clypeal punctures with their inner borders sharply formed, bearing minute, appressed, laterally directed setae ; frontal punctures slightly asperose, their anterior or antero-internal borders sharply formed, bearing setae similar to those of frons ; vertex marked by very closely set punctures. *Pronotum* with anterior border strongly sinuate laterally, directed obliquely backward to anterior angles ; posterior angles strongly obtuse, briefly rounded ; hind margin without a raised posterior border ; lateral borders with outstanding setae shorter than basal anterior tarsal segment ; surface with well-marked transverse, subbasal, impunctate areas ; disc with small, transverse punctures, separated by from less than one to several diameters, bearing minute, scarcely discernible setae ; punctures more closely set and slightly asperose along anterior margin ; intervals between punctures of disc and along margins finely, but strongly shagreened. Scutellum slightly transverse ; set with small punctures separated by about their own diameter and bearing minute setae similar to those in pronotal punctures ; intervals finely shagreened. *Elytra* with punctures separated by about their own diameter or a little more, bearing minute setae scarcely more conspicuous than those of pronotal punctures ; intervals between punctures finely, but quite strongly shagreened ; lateral borders set with stiff, outstanding setae from bases to apical borders ; apical borders set with much shorter, inconspicuous setae. Pygidium convex, much more strongly so near apex than elsewhere ; slightly transverse ; punctures annulate, usually separated by one diameter or more, bearing minute setae about as long as the diameter of a puncture ; intervals finely shagreened. Metasternum, episterna and hind coxae with fine, non-squamiform setae in punctures; setae on anterior parts of metasternum much longer than those elsewhere, setae on metepisterna shorter than shorter setae of metasternum and shorter than those of hind coxae ; intervals between punctures finely and faintly shagreened. Abdominal segments with punctures concentrated toward lateral margins ; punctures along lateral margins separated by more than one diameter and bearing non-squamifom setae of varying lengths, the longer setae comparable to those of hind coxae, the shorter setae less than half as long as this as a rule ; intervals finely shagreened, progressively less strongly so toward midline. *Legs* with anterior tibiae strongly tridentate ; basal hind tarsal segment about two thirds as long as second ; tarsal claws with lower ramus about half as long as upper, upper ramus not emarginate beneath apex.

Genitalia (Text-figs. 122 and 123).

FEMALE. Slightly more stoutly built than the *male*. The antennal club is composed of shorter lamellae, the basal hind tarsal segment is almost as long as the second segment and the pygidium is less convex and bears near its apex a large, nasiform tubercle.

Holotype : A *male* in the G. Frey Museum, Munich. Windhoek, S-W. Africa.

Paratypes : 1 *male* with the same data as the holotype. 1 *female* Windhuk [*sic*], S-W. Afrika. Hartmann leg (F.).

S. marginata sp. n.

Length 10–10·5 mm. Breadth 4·75–5 mm.

MALE

This species is very like *S. windhoekensis*, described above, but differs as indicated in the key to species and in the following respects.

The head is more sharply angled at the vertex, showing a tendency to have a transverse carina there. The anterior border of the pronotum is less strongly sinuate laterally and not directed obliquely backward to anterior angles. The setae along the lateral borders of the elytra tend to be more sparsely arranged behind the level of the hind coxae. The setae on the anterior parts of the metasternum are relatively shorter.

Genitalia (Text-figs. 120 and 121).

FEMALE. Extremely similar to the *male*.

Holotype : A *male* in the South African Museum, Cape Town. Grootfontein, S-W. A[frica] March 1929 (J. S. Brown).

Paratypes : 1 *female* with same data as holotype. 1 *female* Otjavifontein, S-W. Africa 20.xi.1933 (K. Jordan).

This species is clearly closely related to S. *windhoekensis*, but it is at once distinguished from the latter species by the marginal bands of strong, though fine shagreening on the elytra. This curious feature is one which it shares with S. *livida* Klug (p. 153).

S. gonaqua Pér.

Schizonycha gonaqua Péringuey, 1904, p. 212.

Length 12–15 mm. Breadth 5·5–7·5 mm.

MALE

Colour dark castaneous. *Head* (Text-fig. 22) with labral emargination obtuse; anterior face of clypeus vertically convex, without, or with a very brief median gap in row of setiferous punctures; anterior edge of clypeus truncate medially; clypeal carina angulate medially; surface of clypeus raised medially to form a blunt, longitudinal median ridge; frons slightly longer in midline than clypeus; basal cephalic carina replaced by closely set punctures; frontal punctures radially disposed about an anteromedian centre. *Pronotum* with anterior border strongly sinuate; anterior angles slightly produced; posterior angles obtuse; lateral borders serrate, sinuate behind anterior angles, set with setae longer than basal anterior tarsal segment; surface with two transverse, impunctate, subbasal declivous areas, one on either side of midline; disc with a median longitudinal impunctate space in most examples, elsewhere with transverse punctures, slightly more closely set anteriorly and toward lateral margins, setae in punctures exceedingly minute and inconspicuous; intervals finely and very faintly shagreened; basal pronotal border not raised medially. Scutellum profusely punctate laterally; intervals finely and faintly shagreened. *Elytra* with punctures separated by more than their diameter, especially toward apices, punctures bearing minute, inconspicuous setae, scarcely longer than the diameter of a puncture; intervals very faintly shagreened around punctures, sculpture scarcely discernible; lateral borders with outstanding, testaceous setae from bases almost to apicosutural angles, setae near bases as long as those along lateral pronotal borders, setae diminishing in length toward elytral apices. Pygidium transverse; annulate-punctate, punctures separated by from one to two diameters, each bearing a minute seta similar to those of elytral punctures; intervals finely, but distinctly shagreened. Metasternum, episterna and hind coxae closely punctate, punctures on episterna and anterior parts of metasternum often separated by less than their diameter, bearing long, yellowish white setae. Abdominal segments with slightly asperose punctures; punctures along midline more or less restricted to a single transverse row on each segment, each puncture with a long, outstanding, testaceous seta; punctures more numerous toward lateral margins, many bearing setae as above, others with shorter, recumbent, slightly squamiform setae; intervals slightly wrinkled laterally, faintly shagreened toward extreme lateral margins. *Legs* with anterior tibiae strongly tridentate; basal hind tarsal segment almost, or quite as long as second; tarsal claws with lower ramus about half as long as upper, upper ramus strongly emarginate beneath apex.

Genitalia (Text-figs. 126 and 127).

FEMALE. Has the antennal club almost as long as that of the *male*, but may be distinguished by the following points : The pygidium is almost quadrate and more convex laterally. The lower ramus of all the tarsal claws is divergent from the upper ramus, instead of being closely applied to it as it is in the *male*.

Type locality : Namaqualand, Cape Province (S.A.M.).

Other material examined from : Cape Province : Garies (S.A.M. and F.) ; Lilyfontein (S.A.M.) ; Kleinzee (S.A.M.) ; Kamieskroon (S.A.M.) ; all in Namaqualand.

Total material seen : more than 7 examples.

S. gonaquoides sp. n.

Length 13 mm. Breadth 6–7 mm.

MALE

This species is extremely closely related to *S. gonaqua*, being almost indistinguishable from it other than by the characters given in the key to species and by the male genitalia. The description of *S. gonaqua* given above will apply equally well to *S. gonaquoides* with the exception of the head characters upon which the separation of the species is based.

Genitalia (Text-figs. 124 and 125).

FEMALE. Unknown.

Holotype : A *male* in the South African Museum, Cape Town. Klip Vlei, Garies, Namaqualand Nov. 1931 (Museum Staff).

Paratype : A *male*. Lilyfontein, Namaqualand Dec. 1931 (K. H. Barnard).

S. rotunda sp. n.

Length 13–16 mm. Breadth 7·5–9 mm.

FEMALE

Black to piceous. Wings reduced to much less than the length of the metasternum in most examples. *Head* with labral emargination about 120° ; anterior face of clypeus vertically convex, gap in row of setiferous punctures narrow ; anterior clypeal edge broadly truncate medially ; clypeal carina distinct, not very strongly arcuate ; basal cephalic carina indicated by a marked angulation of the head bordered posteriorly by a band of very closely set punctures ; clypeus with a median longitudinal carina ; frons slightly longer in midline than clypeus ; clypeal punctures scabrose, frontal punctures irregular in size and spacing ; punctures of frons and clypeus with small, recumbent, white, squamiform setae. *Pronotum* with anterior border almost evenly curved, briefly and shallowly arcuate just inside obtuse anterior angles ; posterior angles strongly obtuse, briefly rounded ; strongly serrate lateral borders with outstanding, curved, testaceous setae longer than basal anterior segment ; hind border not raised medially ; surface with two transverse, subbasal, impunctate declivous areas, one on either side of midline ; disc with a longitudinal median impunctate space, elsewhere with transverse, often anteriorly emarginate punctures (Text-fig. 7), separated by from less than one to almost two diameters, each with a seta similar to those on head ; intervals finely and faintly shagreened ; punctures along anterior margin feebly scabrose. Scutellum strongly transverse, annulate-punctate laterally, setae in punctures similar to those of pronotal disc ; intervals finely and faintly shagreened. *Elytra* with punctures separated by slightly more than one diameter, each with a minute anterior tubercle from which arises a white, squamiform seta, broader and a little longer than those of pronotum ; intervals finely shagreened, more strongly so than pronotal intervals ; lateral borders with outstanding, testaceous setae from bases to level of apex of third abdominal segment, setae near bases as long as those along lateral pronotal borders, others decreasing in length toward elytral apices. Pygidium slightly transverse ; annulate-punctate, punctures usually separated by more than their own diameter and each with a squamiform seta similar to, although sometimes slightly longer than, those of elytra ; a more or less clearly defined, longitudinal median, impunctate area present ; intervals finely shagreened. Metasternum, episterna and hind coxae usually with long, fine, yellowish-white setae in punctures, metasternum and occasionally episterna also, with a few large, white, squamiform setae amongst hairs. Abdominal segments almost impunctate along midline, punctures, except on penultimate segment where they are more numerous, restricted to little more than a single, transverse row on each from which arise suberect bristles ; the single row on each segment is continued laterally, but here is accompanied by other punctures which bear large, appressed, white, squamiform setae, larger than any on upper surfaces ; punctures along extreme lateral margins with smaller squamiform setae, some no larger than those on elytra ; intervals extremely faintly shagreened medially, slightly more obviously so laterally. *Legs* with anterior tibiae strongly tridentate ; basal hind tarsal segment as long as second ; tarsal claws of all legs with lower ramus less than half as long as upper and less robust at base ; lower ramus divergent from upper, upper ramus emarginate beneath apex.

MALE. Unknown.

Holotype : In the South African Museum, Cape Town. East of Pakhuis Pass, Cape Province, Sept. 1947 (Mus. Exp.).

Paratypes : 4 with same data as holotype (S.A.M. and B.M. (N.H.)).

Although I have seen only the *female* of this species I have not hesitated to describe it in this revision for I feel that further collecting will establish the identity of the *male*. It may be one of those species already described, or it may have yet to be found.

S. globator (F.)

Scarabaeus globator Fabricius, 1781, p. 20.
Scarabaeus globator Fabricius, 1787, p. 10.
Scarabaeus globator Fabricius, 1792, p. 33.
Geotrupes globator (Fabricius), 1801, p. 21.
Melolontha globator (Fabricius) Olivier, 1789, p. 40, Tab. 6, Text-fig. 60.

Melolontha globator (Fabricius) Schönherr, 1817, p. 171.
Schizonycha globator (Fabricius) Blanchard, 1850, p. 149.
Schizonycha globator (Fabricius) Burmeister, 1855, p. 266.
Schizonycha globator (Fabricius) Péringuey, 1904, p. 204.
Schizonycha idonea Péringuey, 1904, p. 205 (***syn. nov.***).

Length 10–12 mm. Breadth 6–6·5 mm.

MALE

Colour black, derm dull. *Head* with labral emargination rectangular or slightly obtuse ; anterior face of clypeus convex vertically, with at most a narrow median gap in its row of setiferous punctures ; anterior border of clypeus broadly flattened medially, arcuate laterally ; clypeal carina strongly raised, almost straight, weakly angled medially ; vertex sharply angled, with at most a vague indication of a transverse carina ; clypeal punctures large, their antero-internal borders sharply marked ; frontal punctures rather more closely set than clypeal punctures, also with their antero-internal borders sharply defined ; both frontal and clypeal punctures bearing small, white, slightly squamiform setae ; clypeus usually with a more or less well defined longitudinal median carina. *Pronotum* with anterior border moderately sinuate laterally, with anterior angles not or only slightly directed obliquely backward ; posterior angles strongly obtuse, briefly rounded ; posterior margin without a raised hind border in front of scutellum ; lateral borders with outstanding setae as long as or longer than basal anterior tarsal segment ; surface with transverse, subbasal impunctate areas not well defined ; punctures on disc large, circular, containing either a ∩-shaped groove or annulate (Text-fig. 8) and bearing small, white, slightly squamiform setae, only a little larger than those on head, if at all ; intervals finely shagreened ; punctures along anterior margin more closely set than those of disc and slightly asperose. Scutellum slightly transverse, with or without a few punctures laterally ; punctures, if present, smaller than those of pronotal disc, containing slightly smaller setae ; intervals finely shagreened. *Elytra* with punctures separated by more than their own diameter as a rule, bearing narrowly squamiform setae, usually slightly broader and longer than those of pronotum ; intervals finely shagreened ; lateral borders with stiff, outstanding setae from bases to level of third abdominal segment, setae thence to apicosutural angles very small. Pygidium slightly transverse ; shallowly annulate-punctate ; punctures separated by a little less than their diameter, bearing white setae smaller than those of elytra ; intervals finely shagreened. Metasternum, episterna and hind coxae set for the most part with long, fine, yellowish setae, sometimes with rather shorter setae on hinder parts of metasternum and episterna. Abdominal segments each with a transverse row of punctures bearing fine, outstanding setae as well as other punctures bearing short, white, appressed, more or less squamiform setae ; setae of the second kind broader and more numerous toward lateral borders ; intervals finely and faintly shagreened, distinctly less strongly so than intervals between coarse elytral punctures. *Legs* with anterior tibiae strongly tridentate ; basal hind tarsal segment not or only slightly shorter than second ; tarsal claws with lower ramus as broad as upper and more than half as long.

Genitalia (Text-figs. 128 and 129).

FEMALE. Broader than *male* and more rounded in outline. Scutellum broadly transverse. Hind tarsi distinctly shorter than in the *male* and with the basal segment of the hind tarsi longer than the second. The setae along the lateral elytral borders from halfway to the apices are usually larger than in the *male* and are quite conspicuous to the naked eye.

Type locality: Cape of Good Hope (B.M. (N.H.)).

Other material examined from: Cape Province: Stellenbosch (Type of *S. idonea* Pér.) (S.A.M.); Klip Vlei, Namaqualand (S.A.M.). Ceres. "Cape of Good Hope" (B.S.S. and N.H.R.M.). "S. Africa" (no exact locality).

Total material seen: 11 examples.

Having had the opportunity of comparing the Péringuey type specimen of *S. idonea* with the type of *S. globator* (F.), I have no doubt but that they are one species. Péringuey's redescription of the species was no doubt due to his not associating the *male idonea* with the *female* of *globator*, the only sex he recognized of the latter species.

S. jordani sp. n. (Text-fig. 3)

Length 11·5–13 mm. Breadth 5–6 mm.

MALE

Testaceous with head and pronotum darker. *Head* with anterior face of labrum scarcely emarginate at all; anterior clypeal face slightly reflexed medially, with an uninterrupted row of setiferous punctures along it; anterior edge of clypeus straight medially, rounded laterally; clypeal carina clearly marked and evenly arcuate for median four sixths, almost obliterated near eyes; frontoclypeal suture not very distinct; vertex without a transverse carina and not sharply angled; clypeal punctures close-set, elongate, their internal borders sharply formed, punctures bearing minute setae; frontal punctures slightly asperose, smaller and more closely set across vertex than elsewhere, bearing minute setae as on clypeus. *Pronotum* with anterior border shallowly arcuate medially, strongly sinuate laterally and directed obliquely backward to anterior angles; posterior angles very strongly obtuse; hind margin with an indistinctly raised posterior border in front of scutellum; lateral borders not or scarcely crenulate for anterior fourth, bearing outstanding setae, some of which are at least as long as basal anterior tarsal segment; surface with clearly indicated, transverse, subbasal, impunctate areas; disc with small, sometimes slightly asperose punctures, each containing an inverted U-shaped groove and bearing a minute seta about as long as the diameter of a puncture; discal punctures separated by one diameter or more, punctures along anterior margin more closely set and more noticeably asperose; intervals with fine and faint shagreening and with micropunctures separated by several diameters. Scutellum transverse (2 : 3); punctured along lateral margins, punctures slightly larger than those on pronotal disc, bearing minute setae and also containing an inverted U-shaped groove; intervals finely and rather faintly shagreened. *Elytra* with punctures separated by from slightly less than one to about two diameters, bearing fine setae about equal in length to the diameter of a puncture; intervals finely shagreened; lateral borders with outstanding setae from bases to apical borders; apical borders set with very short, stiff setae. Pygidium slightly transverse (10 : 13); convex, more strongly so near apex than elsewhere; punctures small, annulate, separated by from one to about two diameters, bearing minute, scarcely discernible setae about as long as the diameter of a puncture; apical half of pygidium usually distinctly less closely punctured than elsewhere; intervals finely and faintly shagreened. Metasternum, episterna and hind coxae with long, fine, almost white setae in punctures; intervals between punctures almost smooth. Abdominal segments set with slightly asperose punctures; few punctures present across middle of segments, most punctures concentrated along lateral margins, but even here they are usually separated by at least one diameter; punctures bearing either short, fine, appressed, non-squamiform setae or longer, subrecumbent hairs, the latter being more or less confined to a single transverse row on each side of each segment except the penultimate where they are more scattered; shorter setae variable in length, but usually equal to between one and two puncture diameters; intervals finely and faintly shagreened laterally, almost or quite smooth toward midline. *Legs* with anterior tibiae strongly tridentate; basal hind tarsal segment a little more than half as long as second; tarsal claws with lower ramus about three fourths as long as upper ramus and slightly broader, upper ramus emarginate beneath apex.

Genitalia (Text-figs. 130 and 131).

FEMALE. Very similar to the *male*, but with shorter lamellae to the antennal club and with a flatter pygidium which is not more strongly convex apically than elsewhere.

Holotype: A *male* in the British Museum (Nat. Hist.). Otjikata Lake, S-W. Africa 16.xi.1933 (K. Jordan).

Paratypes: 5 *males*, 1 *female* with the same data as the holotype. 2 *females* Sissekab, S-W. Africa 11.xi.33 (K. Jordan). 1 *male* Otjikoto-Deinap, S. West Africa Jan. 1923 Mus. Exped. (S.A.M.).

This species is very closely related in general appearance to S. *geilenkeuseri* Brske. (p. 190) and to S. *boschimana* Pér. (p. 189), but it appears in a different position in the key to species as it has setae on the basal border of the mentum, a feature absent from the other two.

S. clypealis sp. n.

Length 9–11 mm. Breadth 4–5 mm.

MALE

Colour pale testaceous with head and pronotum slightly darker. *Head* with labral emargination obtuse; anterior clypeal face vertically convex, with an entire row of setiferous punctures along it; anterior edge of clypeus backwardly angled medially where it is joined by a longitudinal median clypeal carina; transverse clypeal carina usually arcuate; basal cephalic carina not strongly marked, usually forwardly arcuate when viewed from above; clypeus longer in midline than frons; clypeal punctures elongate; frontal punctures irregular in size and distribution. *Pronotum* with anterior border sinuate, anterior angles directed obliquely backward; posterior angles obtuse; posterior margin with a feebly raised hind border in front of scutellum; lateral borders set with outstanding setae as long as basal anterior tarsal segment; disc usually with a longitudinal median and two transverse, subbasal impunctate areas; elsewhere set with transverse, anteriorly emarginate punctures, somewhat scabrose along anterior margin, bearing minute, inconspicuous setae; intervals finely shagreened. Scutellum transverse; variably punctate; intervals finely shagreened. *Elytra* with punctures separated by about their own diameter or slightly less, setae in them a little more conspicuous than those of pronotal punctures; stiff, outstanding setae along lateral borders sparsely set, reaching from bases to, or almost to, apices; intervals of elytral disc very faintly roughened. Pygidium more or less evenly annulate-punctate or with punctures more closely set toward basal angles; intervals finely shagreened. Metasternum, episterna and hind coxae with punctures usually bearing long, fine setae, but with some, particularly on episterna and postero-lateral metasternal areas bearing large, squamiform setae much larger than setae in elytral punctures; intervals between punctures very faintly roughened. Abdominal segments with punctures concentrated toward lateral margins, some punctures bearing narrowly squamiform setae, others, especially toward middle and along penultimate segment, with long, non-squamiform setae; intervals faintly and finely shagreened. *Legs* with anterior tibiae strongly tridentate; basal hind tarsal segment slightly shorter than second; tarsal claws not deeply cleft, upper ramus twice as long as lower, sometimes somewhat broader.

Genitalia: (Text-figs. 132 and 133.)

FEMALE. Very similar to the *male*, but has the basal hind tarsal segment as long as the second, the pygidium is relatively flatter and the lamellae of the antennal club are slightly shorter.

Holotype: A *male* in the British Museum (Nat. Hist.). Hoffnung, S-W. Africa, 1,850 m. 5.1.1934 (K. Jordan).

Paratypes: 5 *males* and 1 *female* with the same data as the holotype. 1 *female* Hoffnung, S-W. Africa 11.1933 (K. Jordan). 1 *female* Hoffnung, S-W. Africa, 1,850 m. 26.1.1934 (K. Jordan). 1 *male* Otikata Lake, S.W. Africa 16.11.1933 (K. Jordan). 1 *male* Narubis, S-W. Africa Mar. 1921 (K. H. Barnard) (S.A.M.). 1 *female* Ombombo, S-W. Africa Feb. 1926 (Mus. Exped.) (S.A.M.). 2 *males* and 1 *female* Windhoek, S-W. Africa (Hartmann (F. and B.M. (N.H.)). 1 *male* and 1 *female* Abachaus, Otjiwarongo Dist. S-W. Afr. 1.1953 leg. G. Hobohm (B.S.S.).

S. damarina Pér.

Schizonycha damarina Péringuey, 1908, p. 678.

Length 16·5 mm. Breadth 8·5 mm.

FEMALE

Head and pronotum testaceous, elytra pale yellow. *Head* with angle formed by labral emargination about 120°; anterior clypeal face vertically convex, without a median gap in its row of setiferous punctures ; anterior edge of clypeus very shallowly arcuate, lateral edges sinuate ; clypeal carina very feebly arcuate, almost overlying frontoclypeal suture ; vertex with a roughly formed transverse carina which is obliterated medially by a patch of close-set punctures ; clypeal punctures more or less elongate ; frontal punctures irregular in outline and spacing, very closely set toward lateral borders. *Pronotum* with anterior border strongly sinuate laterally ; obtuse anterior angles directed obliquely backward ; posterior angles obtuse ; posterior margin with an entire raised hind border between hind angles ; lateral borders set with outstanding setae usually much longer than basal anterior tarsal segment ; surface with two, almost impunctate, subbasal, transverse areas and disc with a longitudinal median impunctate area as well ; punctures of disc faintly scabrose, more closely set and more strongly scabrose along anterior margin and anterolaterally ; punctures bearing minute, scarcely discernible setae ; intervals with faint traces of shagreening, more noticeable toward lateral margins. Scutellum irregularly punctate laterally ; punctures bearing minute setae as on pronotum ; intervals finely shagreened. *Elytra* with punctures separated by about their own diameter, bearing setae similar to those of pronotum ; intervals almost smooth, very faintly shagreened ; lateral borders with stiff, outstanding setae from bases almost to apices, becoming shorter toward apicosutural angles. Pygidium transverse ; convex, finely, sparsely and shallowly punctured ; intervals finely shagreened. Metasternum, episterna, hind coxae closely scabrosopunctate, with long, fine, very pale yellow setae in punctures. Abdominal segments with long, subrecumbent, yellow setae in punctures ; setae darker and coarser than those of metasternum ; intervals between punctures almost smooth. *Legs* with anterior tibiae strongly tridentate ; basal hind tarsal segment slightly longer than second (8 : 7). (The tarsal claws are missing from the type specimen, but Péringuey describes them as being with the lower ramus " as large and as strongly hooked as the upper ".).

MALE. Unknown.

Type locality : Okahandja, Damaraland, S-W. Africa (S.A.M.).

I have seen only the holotype of this species and am unable to relate it to a *male*.

S. ciliata Burm.

Schizonycha ciliata Burmeister, 1855, p. 268.

Length 15–16·5 mm. Breadth 8–9 mm.

MALE

Colour castaneous, head and pronotum usually darker than elytra. *Head* with labral emargination almost rectangular ; anterior clypeal face vertically convex, almost always with a moderately obvious median gap in its row of setiferous punctures ; anterior edge of clypeus biarcuate, sometimes weakly sinuate toward eyes ; clypeal carina very feebly arcuate, usually shallowly angulate medially ; frontoclypeal suture visible ; vertex without a transverse carina, moderately sharply angled, marked by small, closely-set punctures ; clypeus with a median longitudinal carina arising from anterior edge and running backward toward clypeal carina; clypeal punctures elongate, their internal borders sharply formed, punctures separated by about one transverse diameter, bearing minute, laterally-directed setae; frontal punctures transverse, small, variably spaced, often separated by more than one diameter on middle of frons, but much more closely set toward eyes, punctures bearing setae similar to those of clypeus. *Pronotum* with anterior border sinuate laterally, directed obliquely backward toward anterior angles; posterior angles obtuse; posterior margin without a raised hind border in front of scutellum; crenulate lateral borders set with setae longer than basal anterior tarsal segment; surface usually with well-marked transverse, subbasal, impunctate areas and with a longitudinal median impunctate space as well; discal punctures transverse, frequently separated by more or less their longitudinal diameter, punctures annulate or containing an inverted U-shaped groove and each bearing a minute seta not much longer than the length of a puncture; setae in punctures toward anterior angles larger than those of disc; punctures along anterior margin more closely set than those of disc, but not more asperose; intervals finely, often faintly shagreened. Scutellum slightly transverse (6 : 7); impunctate mediobasally and along lateral margins; punctures elsewhere similar to those of pronotum and bearing similar setae; intervals finely shagreened. *Elytra* with punctures separated by more or less their own diameter on disc, a little more sparsely arranged toward apices; punctures bearing minute setae, scarcely more conspicuous than those of pronotum; intervals smooth or with traces of shagreening; lateral borders with stiff, outstanding setae from bases to apices (Text-fig. 29). Pygidium not strongly transverse (12 : 15); convex; set with annulate punctures usually separated by more than their diameter and bearing setae similar to those of pronotum; setae in punctures generally longer toward upper angles of pygidium; intervals between punctures finely shagreened. Metasternum, episterna and hind coxae densely clothed with long, fine, pale yellow setae; punctures close-set, annulate; intervals sometimes faintly shagreened. Abdominal segments more closely punctured toward lateral margins than on disc, punctures across middle of each segment often confined to a single row bearing long, fine, subrecumbent, yellow setae; punctures toward and along lateral margins separated by their own diameter or more, bearing short, appressed, white, narrowly squamiform setae; intervals finely, but not strongly shagreened. *Legs* with anterior tibiae strongly tridentate; basal hind tarsal segment about as long as second; tarsal claws with upper ramus nearly twice as long as lower and emarginate beneath apex.

Genitalia (Text-figs. 138 and 139).

FEMALE. Very similar to the *male*, but with shorter lamellae to the antennal club, with a flatter pygidium, particularly longitudinally, and with the basal hind tarsal segment a little longer than the succeeding segment.

Type locality: S-W. Africa (Univ. of Halle).

Other material examined from: Cape Province: Olifants river, between Citrusdal and Clanwilliam (S.A.M.); Garies (F. and B.M. (N.H.)); 12 miles from Klaver (F. and B.M. (N.H.)).

Total material seen: 10 examples.

There is a single *female* example over the name *S. ciliata* in the Burmeister collection at Halle. It agrees with the description of that species given by Burmeister and there is no reason for not regarding it as the type specimen of *S. ciliata*. As noted on p. 186 of this paper, Péringuey misinterpreted *S. ciliata* Burm., redescribing *S. perforata* Burm. under the former name and regarding the latter as a species known to him from its description alone and unidentifiable.

S. laticia n. n.

Schizonycha comosa Péringuey (*nec* Burm.), 1904, p. 206.

Length 14·5–16 mm. Breadth 7·5–8·5 mm.

MALE

This species is very similar to *S. ciliata* Burm. (p. 146), but the latter generally runs to a different section of the key to species because it almost always has a noticeable median gap in the row of setiferous punctures across the anterior face of the clypeus. *S. laticia* differs from *S. ciliata* by this character, by the other characters referred to in the key and by the following points.

The median longitudinal clypeal carina is much shorter, generally extending only a short distance backward from the anterior edge of the clypeus. The anterior border of the pronotum is less strongly sinuate laterally and is not directed obliquely backward to the anterior angles.

Genitalia (Text-figs. 136 and 137).

FEMALE. Unknown to me. Péringuey states that it has the median longitudinal impunctate space on the pronotum more distinct than it is in the *male*. He also says that there is no longitudinal median impunctate area on the pygidium in the *female*.

Type locality : Péringuey gives Willowmore and Beaufort West, both in S-W. Cape Province as localities for this species.

Other material examined from : Cape Province : Matjesfontein ; Letjesbosch Koup (S.A.M.) ; Thee Kloof, Fraserburg div. (S.A.M.) ; and a single example in the Zoologisches Museum, Berlin, labelled " Orlog Rivier. Meyer ".

Total material seen : 5 examples.

The species which Péringuey interpreted as *S. comosa* Burm. is quite clearly identifiable from the figure given by him of the *male* genitalia. The material I have identified as this species also agrees with the size range given by Péringuey, the distribution he quotes and the few remarks he gives as to its general appearance. Thus, although I have not seen material identified by Péringuey as *S. comosa*, I am quite certain that I am familiar with the species to which he applied this name.

There is no material extant in either Burmeister's or Germar's collections bearing the name *S. comosa* Burm. It is not possible from the description alone to be certain as to its identity, but a comparison of the description with the species interpreted by Péringuey as *S. comosa* gives the following results.

Burmeister gives the length of his species as 5‴ (13 mm.) and states that it is much narrower in build than *S. corrosa* Burm. The width of the latter species varies from 6·5–7·5 mm. (the type specimen being 7 mm. broad). The size of *S. comosa* which thus emerges is not compatible with the range given by Péringuey.

The locality given by Burmeister for *S. comosa* is " Weihnachtsbai " (= Bay of Natal). As far as can be seen at present, the species interpreted by Péringuey as *S. comosa* has a rather restricted distribution in the south western part of Cape Province.

The original description of *S. comosa* compares the species with *S. corrosa*. Burmeister states that the anterior angles of the pronotum are sharper than in *corrosa*. In the Péringuey species they are distinctly less sharp than in *S. corrosa*. The setae in the punctures of the metasternum, episterna and hind coxae of the species described above are very pale yellow and not red-gold as noted by Burmeister in the case of *S. comosa*.

It would thus appear quite clear that Péringuey misinterpreted *S. comosa* Burm., applying the name to a hitherto unknown species. This species is renamed and redescribed above as *S. laticia*.

As inferred above, I have been unable to establish the true identity of *S. comosa* Burm. I have listed it and its description among the " Species Incertae Sedis " on p. 74 of this paper.

S. quaesita Pér.

Schizonycha quaesita Péringuey, 1904, p. 216.

Length 14 mm. Breadth 8 mm.

MALE

Colour black, dull. *Head* with labral emargination actute ; anterior face of clypeus not vertically convex, with a broad median gap in its row of setiferous punctures ; clypeal carina broadly arcuate, feebly raised toward lateral borders ; vertex moderately sharply angled, with at most a vestigial transverse carina laterally; clypeus with somewhat elongate, closely set punctures, their internal borders sharply defined, punctures bearing small, pale yellow setae ; frontal punctures obliquely transverse, their antero-internal borders sharply marked, bearing setae slightly larger and more conspicuous than those of clypeus. *Pronotum* with anterior border evenly emarginate ; posterior margin without a raised hind border in front of scutellum ; surface with clearly marked, transverse, subbasal impunctate areas ; disc with a longitudinal median impunctate area ; discal punctures coarse, separated by less than one diameter as a rule, containing an inverted U-shaped groove and bearing small, pale yellow setae about as long as the diameter of a puncture ; intervals between coarse punctures finely shagreened ; lateral borders crenulate, set with stiff, outstanding setae of varying length, some longer than basal anterior tarsal segment. Scutellum transverse ; punctures smaller than those of pronotum, usually congregated laterally ; intervals finely shagreened. *Elytra* with punctures separated by one diameter or slightly more, bearing pale yellow, faintly squamiform setae a little more conspicuous than those of pronotum; intervals finely shagreened; lateral borders with stiff, outstanding setae from bases to level of hind coxae, set with much shorter and less conspicuous setae from level of hind coxae to apical borders. Pygidium transverse (11 : 13–15); annulate-punctate, punctures separated by more than one diameter, each bearing a small seta, slightly smaller than those of elytra; intervals finely shagreened. Metasternum, episterna and hind coxae with long testaceous setae and broad squamiform setae in punctures, the latter mainly on episterna, lateral margins of hind coxae and toward posterior angles of metasternum; squamiform setae much larger than any on upper surfaces. Abdominal segments sparsely punctured, especially medially; punctures bearing conspicuous, whitish yellow, squamiform setae, some of them larger than those of upper surfaces, but smaller than those of epimera and hind coxae; intervals finely shagreened, more strongly so toward lateral margins. *Legs* with anterior tibiae strongly tridentate; basal hind tarsal segment four fifths as long as second; lower ramus of tarsal claws less than half as long as upper and much finer.

Genitalia (Text-figs. 140 and 141).

FEMALE. Unknown.

Type locality: Klerksdorp, Transvaal (S.A.M.).

Other material examined from: A single example from the South African Museum, also probably from Klerksdorp.

Péringuey gives Johannesburg, Transvaal as a locality for this species.

S. compacta sp. n.

Length 12·5–13·5 mm. Breadth 6·5–8 mm.

MALE

Colour black to piceous; not very shining. *Head* with labral emargination weakly acute; anterior clypeal face reflexed, almost plane vertically, with a broad median gap in its row of setiferous punctures; clypeal carina arcuate; fronto-clypeal suture clearly marked; vertex with a clearly marked transverse carina which is, however not strongly raised; clypeal punctures elongate, their internal borders more sharply marked than other borders, punctures bearing short, golden, non-squamiform setae; frontal punctures with their antero-internal borders only sharply formed, punctures bearing setae similar to those of clypeal punctures. *Pronotum* with anterior border evenly emarginate; posterior margin without a raised hind border in front of scutellum; posterior angles obtuse; lateral borders with outstanding setae about twice as long as basal anterior tarsal segment; surface with well-marked transverse, subbasal, impunctate areas; surface elsewhere set with coarse, variably separated punctures, each containing an inverted U-shaped or M-shaped groove, or annulate, each puncture bearing a small, white, squamiform seta; a median longitudinal impunctate area usually present; intervals between punctures finely, but strongly shagreened. Scutellum broadly transverse (1 : 2); coarsely punctured, especially laterally, punctures containing inverted U-shaped grooves or annulate, bearing squamiform setae somewhat smaller than those of pronotum; intervals finely shagreened. *Elytra* with punctures separated by considerably more than one diameter, especially toward apices; punctures bearing squamiform setae slightly smaller than those of pronotum; intervals finely, but strongly shagreened; lateral borders with stiff, outstanding setae from shoulders to level of hind coxae only; inflected lateral borders broadened medially, evanescent toward apices (Text-fig. 43). Pygidium very slightly transverse; faintly and sparsely annulate-punctate, punctures usually separated by more, often by much more than one diameter; punctures bearing small, slightly squamiform setae; intervals finely shagreened. Metasternum, episterna and hind coxae with punctures separated for the most part by one diameter, containing inverted U-shaped grooves and bearing either short, outstanding setae or shorter, subrecumbent, squamiform setae, the latter more especially posteriorly and postero-laterally; squamiform setae considerably larger than those of upper surfaces. Abdominal segments more closely punctate laterally than medially; punctures of first four segments with small tubercles at their anterior borders, more noticeable laterally; punctures of fifth segment annulate; punctures bearing short, appressed, squamiform setae; fifth segment with long, fine setae as well as squamiform setae; intervals between punctures of abdominal segments finely shagreened, less strongly so toward midline. *Legs* with anterior tibiae tridentate; basal hind tarsal segment four fifths as long as second; tarsal claws with upper ramus considerably shorter and finer than lower.

Genitalia (Text-figs. 134 and 135).

FEMALE. Differs from the *male* by the shorter lamellae of the antennal club and by the more rounded outline of the elytra.

Holotype: A *male* in British Museum (Nat. Hist.). Van Reenen, Drakensberg, Natal 55–6500 Ft. × '26 (R. E. Turner).

Paratypes: 4 *males* and 2 *females* with same data as holotype. 1 *male* Ulundi, Natal 9. '96 (G. A. K. Marshall).

S. piceonigra sp. n. (Text-fig. 2)

Length 10·5–12·5 mm. Breadth 5·5–6 mm.

MALE

Black to piceous; dull. This species is closely related to both S. *compacta* sp. n. and S. *spuria* Pér., differing from them as indicated in the key to species. The facies of this species approach more closely those of S. *spuria* than those of S. *compacta*, but it is distinguished from the former by the more conspicuous setae of the upper and lower surfaces and by the fact that the lamellae of the antennal club are about one and one half times as long as the funicle whereas they are twice as long as the funicle in S. *spuria*.

Genitalia (Text-figs. 142 and 143).

FEMALE. I have examined two specimens, one in the Museum G. Frey and bearing the data " Johannesburg, Süd-Afrika, v. 1949 Zumpt " and another in the British Museum (Nat. Hist.), London, with the data " Int. S. Afr.", which I believe to be the female of this species. They differ from the *males* by their more rounded form, shorter lamellae of the antennal club, relatively larger head and by having reduced, non-functional wings.

Holotype: A *male* in the British Museum (Nat. Hist.). Pretoria (Transvaal) W.L.D. (1899).

Paratypes: 1 *male* with same data as holotype. 1 *male* Pretoria 1913 (L. M. Bucknill). 3 *males* Cape Town x.96 (J. P. Cregoe). 2 *males*, 1 *female* Int. S. Afr. 43 : 19 [Burke]. 1 *male* Pascoe Coll. 93.60. 1 *male* Zoutsp. [Zoutpansberg] Transvaal 99 : 118 (Kaessner). 1 *female* Johannesb[ur]g, Süd Afrika v.1949 (Zumpt) (F.).

S. spuria Pér.

Schizonycha spuria Péringuey, 1904, p. 237.

Length 11 mm. Breadth 5·75 mm.

MALE

Colour black to piceous, not very shining. This species is very closely related to both *S. piceonigra* and *S. compacta*, but may be distinguished from them as indicated in the key to species. The male genitalia of this species are very similar indeed to those of *S. compacta*, but in the latter species the head is much broader in proportion to the pronotum than is the case with *S. spuria*.

Genitalia (Text-figs. 144 and 145).

FEMALE. Unknown.

Type Locality: Rustenburg, Lydenburg, Transvaal (S.A.M.).

Other material examined from: Transvaal: Johannesburg.

Total material seen: 3 examples.

S. pseudosquamifera sp. n.

Length 13 mm. Breadth 6·5 mm.

MALE

Colour black to piceous. *Head* with labral emargination forming an angle of 90° or slightly more; anterior clypeal face slightly convex, row of setiferous punctures interrupted medially; anterior edge of clypeus truncate medially, slightly reflexed; both clypeus and frons very closely punctured, punctures bearing conspicuous, whitish, squamiform setae; clypeal carina regularly arcuate, frontoclypeal suture distinct; basal cephalic carina indicated by a somewhat irregular row of contiguous punctures. *Pronotum* with anterior border evenly arcuate; anterior and posterior angles obtuse; lateral borders with outstanding, curved, testaceous setae longer than basal anterior tarsal segment; hind border not raised medially; surface with two narrow, transverse, subbasal, impunctate areas, one on either side of midline; punctures of disc and margins coarse, each containing an inverted U-shaped groove and bearing a conspicuous, pointed, squamiform seta, broader than those on head; discal punctures irregularly spaced, often separated by half a diameter or even less;

intervals finely, but strongly shagreened (microsculpture readily visible under × 20 magnification). Scutellum transverse, squamoso-punctate laterally, squamae as on pronotum; intervals finely shagreened. *Elytra* with punctures separated by slightly more than their diameter and bearing squamiform setae similar to those on pronotum; intervals with more obvious microsculpture than pronotal intervals; lateral borders with a mixture of long, outstanding, testaceous setae and minute, slightly squamiform setae from bases to level of hind coxae, minute setae only from hind coxae to apicosutural angles. Pygidium slightly transverse, almost flat longitudinally, distinctly convex transversely; annulate-punctate, punctures separated their own diameter or less; setae in punctures smaller than those of elytra, with rounded apices, suberect medio-apically, elsewhere recumbent; intervals finely reticulate, less strongly so than elytral intervals. Metasternum, episterna and hind coxae with punctures usually annulate, a few containing an inverted, U-shaped groove, bearing either long, pale setae or very broad, conspicuous, squamiform setae, broader than any on upper surfaces, rounded apically; squamiform setae confined to postero-lateral parts of metasternum, posterior two thirds of epimera and to hind coxae, a few scattered squamae also present on metasternal disc. Abdominal segments with squamiform setae in punctures, setae broad, rounded apically, variable in size, those toward lateral margins almost as broad as metasternal squamae, setae more widely spaced and distinctly narrower toward midline; penultimate segment with a single transverse row of long bristles as well as squamae; intervals finely and faintly reticulate. *Legs* with anterior tibiae tridentate; basal hind tarsal segment almost as long as second (4 : 5); tarsal claws with lower tooth less than half as long as upper and widely divergent from it (as in Text-fig. 10).

Genitalia (Text-figs. 156 and 157).

FEMALE. Unknown.

Holotype: In British Museum (Nat. Hist.). Graaf Reinet, Cape Province 24–27.x.1931 (Ogilvie).

Paratype: Middleburg [Cape Province] Nov. 1935 (Museum Staff) (S.A.M.).

In general facies this species is very similar to *S. squamifera* Wallengren (p. 195), but the presence of setae along the base of the mentum place it in a different section of the key to species.

S. livida Klug

Schizonycha livida Klug, 1855, p. 658.
Schizonycha livida Klug, 1862, p. 257.
Schizonycha zambeziana Péringuey, 1904, p. 240 (***syn. nov.***).

Length 14 mm. Breadth 6·5 mm.

MALE

Derm dark testaceous with head and pronotum usually darker. Occasional specimens are almost fuscous. *Head* with labral emargination acute; anterior face of clypeus vertically plane, with a moderate median gap in its row of setiferous punctures; clypeal carina weakly arcuate, almost straight medially; frontoclypeal suture indistinct; vertex with a fine, but clearly raised transverse carina which has a groove immediately behind it; clypeal punctures elongate, their internal borders sharply impressed; frontal punctures asperose. *Pronotum* with anterior border sinuate laterally, forwardly arcuate medially; anterior angles slightly oblique; posterior angles obtuse; posterior margin without a raised hind border in front of scutellum; lateral borders with outstanding setae shorter than basal anterior tarsal segment; surface with well-marked, but short, transverse, subbasal impunctate areas; discal punctures each containing an inverted U-shaped groove, somewhat asperose along anterior margin, bearing small, but conspicuous, white, squamiform setae; intervals about equal to diameter of punctures, finely shagreened. Scutellum transverse (3 : 4); laterally punctate; intervals finely, but much more strongly shagreened than intervals between pronotal punctures. *Elytra* with punctures separated by about one diameter and bearing setae as on pronotum; intervals with very faint microsculpture on disc, almost smooth, very strongly shagreened along lateral margins; lateral borders with outstanding setae from bases to level of second or third abdominal segment, interspersed with short, squamiform setae. Pygidium slightly transverse; sparsely and evenly annulate-punctate except for impunctate apical marginal area; punctures bearing squamiform setae similar to those on elytra; intervals finely, but quite strongly shagreened. Metasternum, metepisterna and hind coxae with punctures (except for some punctures on anterior metasternal margin and some on mediobasal metasternal area) bearing broad, squamiform setae much larger than those of upper surfaces; intervals almost smooth. Abdominal segments with punctures bearing squamiform setae of varying sizes, larger laterally than along midline; intervals finely shagreened laterally, progressively less strongly so toward midline. *Legs* with anterior tibiae strongly tridentate; basal hind tarsal segment a little more than half as long as second (4 : 7); tarsal claws with upper ramus much finer and a little shorter than lower on middle and front legs, rami of tarsal claws of hind legs almost equal in length.

Genitalia (Text-figs. 150 and 151).

FEMALE. Similar to the *male*, but with the lamellae of the antennal club shorter and with the upper ramus of all tarsal claws almost as long as lower although more slender.

Type locality: Tete, Zambesi (Z.M.B.).

Other material examined from: S. Rhodesia: Sebakwe (S.A.M.—Type of *S. zambeziana* Pér.). Bechuanaland: Nata (F.). Port. E. Africa: Tete (Z.M.B.).

Through the kindness of Dr. Delkeskamp, I have been able to examine the material in the Zoologisches Museum, Berlin, standing over the name *S. livida* Klug. It consists of six examples, four *females* and two *males*, all bearing the number " 11268 ". One of the *males* has had its genitalia extracted and mounted separately on a card. This specimen bears a white label with " livida Mihi " on it and a green label bearing the words " livens N Tette ". One of the *females* bears a type label and another label inscribed " livida Kl. Tette ". I have accepted this last example as the type of *S. livida* Klug.

I have also been able to examine the type specimen of *S. zambeziana* Pér., and there is no doubt that Péringuey redescribed *S. livida* Klug under this name.

Total material seen: 8 examples.

S. salaama Brske.

Schizonycha salaama Brenske, 1898, p. 359.
Schizonycha africana Klug (*nec* Cast.), 1862, p. 257 (**syn. nov.**).
Schizonycha africana Klug, Péringuey, 1904, p. 231.

Length 14·5–15 mm. Breadth 7–7·5 mm.

MALE

Castaneous; shining. This species is closely related to *S. abenaba* (p. 155), differing from it as explained in the key to species and in the following respects.

The frons has smaller, more closely set and less regularly shaped punctures. The *pronotum* has the anterior border quite markedly sinuate toward the anterior angles and the raised hind border in front of the scutellum is a little more coarsely constructed than it is in *S. abenaba*. The *elytra* are more closely punctured, the setae in the punctures being slightly more conspicuous. The squamiform setae of the metepisterna, the hind coxae and parts of the metasternum are broader and more conspicuous. The squamiform setae of the abdominal segments are also broader, but here the difference between the two species is not so marked. The *legs* have the basal segment of the hind tarsi nearer in length to the second segment (*c.* 18 : 25) than is the case in *S. abenaba* (*c.* 21 : 31).

FEMALE. With shorter antennal lamellae, a more transverse pygidium and with the lower ramus of all the tarsal claws about as long as the upper ramus.

Type locality: Dar es Salaam (Z.M.B.).

Other material examined from: Port. E. Afr.; Tete (type of *S. africana* Klug—Z.M.B.); Kola valley, E. of Mt. Chiperone. Nyasaland: unlocalised.

In 1862, Klug recorded the occurrence in Portuguese East Africa of *S. africana* Castelnau, a species described from Senegal. Péringuey, in 1904, saw the specimen upon which Klug had based his record and stated that he thought it might be synonymous with his own species *S. vaalensis* (= *S. fimbriata* Brske., see p. 207). I too have seen the specimen identified by Klug as *S. africana* and disagree with the findings of Péringuey. It is clearly not an example of *S. vaalensis*. It is very closely related in external appearance to *S. africana* Cast., but has the squamiform setae of the underside smaller and less readily visible than they are in the latter species.

Two *males* of *S. salaama* Brske. in the Zoologisches Museum, Berlin are conspecific with Klug's female example of *S. africana* from Tete. Klug's misinterpretation of *S. africana* Cast. is to be called *S. salaama* Brske., the first available name for the species.

S. abenaba sp. n. (Text-fig. 6)

Length 16·5 mm. Breadth 8 mm.

MALE

Derm testaceous with head and pronotum somewhat redder. *Head* with labral emargination acute; anterior clypeal face reflexed medially, vertically plane, gap in its row of setiferous punctures broad; clypeal carina strongly arcuate; frontoclypeal suture clearly marked; vertex of head sharply angled, but without a raised transverse carina; clypeal punctures elongate with internal borders sharply marked; frontal punctures obliquely transverse, their posterolateral borders not clearly marked. *Pronotum* with anterior border almost evenly emarginate; posterior margin with a raised hind border in front of scutellum; posterior angles obtuse, though sharply formed; lateral border bearing outstanding setae shorter than basal anterior tarsal segment; surface with clearly marked, transverse, impunctate subbasal areas; discal punctures each containing an inverted U-shaped groove and bearing minute setae scarcely as long as diameter of punctures; punctures separated by from one to four diameters, slightly scabrose anterolaterally; intervals finely shagreened. Scutellum transverse (4·5 : 7); strongly punctate laterally; punctures similar to those of pronotal disc, but shallower, bearing similar setae; intervals finely shagreened. *Elytra* with punctures separated by from one to two diameters, bearing minute setae as on pronotum; intervals finely shagreened; lateral borders with outstanding, testaceous setae confined to basal half. Pygidium transverse; strongly convex in apical half; sparsely and shallowly annulate-punctate, punctures somewhat closer basilaterally than elsewhere, bearing minute setae as on elytra; intervals finely shagreened. Metasternum, epimera and hind coxae sparsely setiferous, setae on all but anterior half of metasternum narrowly squamiform. Abdominal segments annulate-punctate laterally, punctures separated by from one and a half to two diameters and with their anterior borders sometimes tuberculate; punctures usually bearing squamiform setae slightly shorter than those on hind coxae, but sometimes bearing larger, non-squamiform setae; intervals finely shagreened. *Legs* with anterior tibiae tridentate, basal tooth well marked; basal hind tarsal segment three fourths as long as second; tarsal claws with upper ramus about half as broad at base as lower and slightly shorter.

Genitalia (Text-figs. 146 and 147).

FEMALE. Differs from the *male* by having shorter lamellae to the antennal club and by a flatter pygidium.

Holotype: A *male* in the South African Museum, Cape Town. Abenab, S-W. A[frica]. 1929 (J. Frampton).

Paratypes: 1 *female* Tsintsabis, S.W. Prot.[ectorate] dec. 1919 (R. W. Tucker). 4 *males* Nata, Bechuanaland xii.54 leg. Zumpt (F. and B.M. (N.H.)). 1 *male* E. Africa, Portuguese Territory ("Purchased 1898 of Mr. G. Christy." No other data). 2 *females*. Abachaus, Otiwarongo (*sic*) Distr. S-W. Afr. 11.1953 leg. G. Hobohm (B.S.S.).

This species, which further collecting may well show to have a rather wide distribution, is related to S. *salaama* Brske. (p. 155) and to S. *livida* Klug (p. 153), but differs from them as indicated in the key to species.

S. usambarae Brske (Text-fig. 5)

Schizonycha usambarae Brske., 1898, p. 362.
Schizonycha bogamoyana Brske., 1898, p. 363 (**syn. nov.**).

Length 13–16 mm. Breadth 6·5–8·5 mm.

MALE

Derm variable from testaceous to deep fuscous. *Head* with labral emargination strongly acute ; anterior clypeal face reflexed medially, vertically plane ; anterior edge of clypeus usually straight medially, rounded laterally to eyes ; clypeal carina strongly arcuate ; frontoclypeal suture well-marked ; vertex sharply angled, with a weakly raised transverse carina ; clypeal punctures elongate, usually separated by one transverse diameter or less ; frontal punctures transverse or obliquely transverse ; both clypeal and frontal punctures bearing minute, recumbent setae ; intervals between coarse punctures with scattered micropunctures. *Pronotum* with anterior border strongly sinuate laterally and directed obliquely backward to strongly obtuse anterior angles ; posterior margin without a raised hind border in front of scutellum ; posterior angles obtuse ; lateral borders with outstanding setae shorter than basal anterior tarsal segment ; surface with clearly marked transverse, subbasal, impunctate areas ; disc with punctures annulate or containing an inverted U-shaped groove, variably separated by from one half to two diameters ; punctures frequently transverse toward lateral margins, occasionally transverse on disc also ; punctures bearing small, white, scarcely squamiform setae ; intervals finely and faintly shagreened. Scutellum transverse (2 : 3) ; lateral margins each with a single row of coarse setiferous punctures ; intervals finely shagreened. *Elytra* with punctures separated by less than one diameter as a rule, bearing setae similar to those of punctures on pronotal disc ; intervals smooth, or with faint shagreening ; lateral borders with stiff, outstanding setae from bases to within at least one third of the distance between bases and apical borders, sometimes from bases to apices, setae diminishing in length from shoulders toward apices ; apical borders set with minute setae, smaller than those of elytral disc in some instances. Pygidium transverse (*c.* 6 : 8) ; strongly convex ; annulate-punctate, punctures variably separated by from less than one to two or more diameters ; setae in punctures minute, about as long as the diameter of a puncture ; intervals finely shagreened. Metasternum, episterna and hind coxae with punctures separated by more or less one diameter and bearing either long fine, setae, or shorter, white, narrowly squamiform setae larger than those of upper surfaces ; squamiform setae restricted to posterolateral parts of metasternum, all but the anterior margins of the episterna and to the external margins of the hind coxae. Abdominal segments sparsely annulate-punctate, especially medially where punctures are reduced to a single transverse row and a few scattered punctures across each segment ; punctures toward and along lateral margins separated by from one to about two diameters, bearing short, white, appressed setae varying in length from one to about two puncture diameters ; transverse row of punctures across each segment bearing longer, more or less outstanding, yellowish setae ; intervals between punctures finely shagreened. *Legs* with anterior tibiae tridentate ; basal hind tarsal segment about three fourths as long as second ; tarsal claws with upper ramus of anterior legs shorter and distinctly finer than lower, upper ramus of those of middle and hind legs slightly finer than lower as a rule, but almost equally long.

Genitalia (Text-figs. 154 and 155).

FEMALE. Very similar to the male, but with slightly shorter lamellae to the antennal club and with the pygidium flat or slightly concave longitudinally while remaining strongly convex transversely.

Type locality: Dar es Salaam (Z. M. B.).

Other material examined from: Traansval: Blauberg; Barberton; Zoutpansberg district; Rustenberg; Tzaneen. S. Rhodesia: Lomagundi (D.A.S.R.); Bulawayo. Mozambique: Nyassa. Nyasaland: Dowa district. Tanganyika Terr.: Tanga Province; Bagamoyo (Z. M. B.) (type of *S. bogamoyana* Brske.); Usambara (Z. M. B.). Zanzibar.

Total material seen: 17 examples.

Through the kindness of Dr. Delkeskamp of the Zoologisches Museum, Berlin, I have been permitted to examine the type specimens of *S. bogamoyana* and *S. usambarae*. There is no doubt that they are examples of a single species. The name *usambarae* is here selected as the correct name for the species as it has page priority over *S. bogamoyana*.

S. continens Pér.

Schizonycha continens Péringuey, 1904, p. 214.

Length 12·25–13 mm. Breadth 6·25–6·5 mm.

MALE

Colour pale castaneous with head and pronotum darker. *Head* with labral emargination acute; anterior clypeal face almost plane vertically, with a median gap in row of setiferous punctures; anterior edge of clypeus truncate medially, slightly reflexed; clypeal carina arcuate, strongly raised; frontoclypeal suture distinct; basal cephalic carina irregularly raised, bordered behind by a row of punctures; clypeal punctures elongate; frontal punctures closely set, irregular, slightly scabrose; both clypeal and frontal punctures bearing small, white, squamiform setae. *Pronotum* (Text-fig. 40) with anterior border almost evenly curved, sometimes feebly arcuate medially; anterior and posterior angles obtuse; hind border not raised medially; crenulate lateral borders with stiff, outstanding setae shorter than basal anterior tarsal segment; surface with very narrow, transverse, subbasal, impunctate, declivous areas; disc with large, deep punctures, usually separated by less than one diameter and containing an inverted U-shaped groove; each puncture bearing a white, squamiform seta slightly larger and more conspicuous than those on head; intervals smooth. Scutellum transverse, annulate-punctate, punctures bearing setae similar to those in pronotal punctures; intervals finely shagreened. *Elytra* with punctures separated by about their own diameter, bearing squamiform setae similar to, but sometimes slightly smaller than those of pronotum, intervals almost smooth, shining; lateral borders with sparse, outstanding, testaceous setae, diminishing in length from bases to level of hind coxae, replaced by minute, whitish setae behind this point. Pygidium slightly transverse, annulate-punctate with punctures separated by about their own diameter and bearing short, outstanding setae slightly smaller than those of elytra ; intervals finely and faintly shagreened. Metasternum, episterna and hind coxae with setae and squamiform setae in punctures, punctures on anterior and posteromedian areas of metasternum bearing long, suberect, pale testaceous setae, elsewhere with punctures bearing appressed, white, squamiform setae, distinctly larger than those of upper surfaces ; episterna with long setae as well as squamae on anterior third. Abdominal segments each with a single, transverse row of setiferous punctures accompanied laterally by other punctures bearing white, squamiform setae, similar to, or slightly larger than those of elytra ; intervals almost smooth, faintly and finely wrinkled laterally. *Legs* with anterior tibiae strongly tridentate ; basal hind tarsal segment about two thirds as long as second ; tarsal claws with upper ramus as broad at base as and slightly longer than lower, broadly emarginate beneath apex.

Genitalia (Text-figs. 164 and 165).

FEMALE. Very similar to *male*, but has a shorter antennal club, has the hind tibial spurs with a length ratio of less than 2 : 1 and the upper ramus of the tarsal claws is distinctly longer than the lower.

Type locality : Barberton, Transvaal (S.A.M.).

Other material examined from : Transvaal : Barberton. Cape Province : Cape Peninsula.

Total material seen : 3 examples.

Péringuey also records Waterburg, Lydenburg, Pretoria in the Transvaal and Bulawayo in S. Rhodesia as localities for this species.

S. mimocontinens sp. n. (Text-fig. 44)

Length 12–13·5 mm. Breadth 6–7 mm.

MALE

Very closely allied to *S. continens* Pér. (p. 158), the description of the latter species applying equally well to the present insect except for the characters referred to in the key to species.

Genitalia (Text-figs. 158 and 159).

FEMALE. Slightly broader than the *male*, with shorter lamellae to the antennal club and with the length-ratio of the apical spurs of the hind tibiae much less than 2 : 1, otherwise almost indistinguishable from the *male*.

Holotype : A *male* in the British Museum (Nat. Hist.). Barberton, Transvaal (Rendall) (no date).

Paratypes : 4 *males* with same data as the holotype. 1 *male* Barberton, Transvaal 31.10.1926 (Taylor). 2 *males* Nelspruit, nr. Barberton, Transvaal Jan. 1939 (R. F. Lawrence) (S.A.M.). 1 *male* Mbabane, Swaziland July 1938 (R. F. Lawrence) (S.A.M.). 1 *male* and 2 *females* Cape Peninsula (S.A.M. and B.M. (N.H.)). 2 *males* Mkuzi, Zulu.[land] [Natal] Dec. 1946 light trap (Div. Ent.).

S. neglecta Boh.

Schizonycha neglecta Boheman, 1857, p. 101.
Schizonycha plausibilis Péringuey, 1904, p. 223 (***syn. nov.***).
Schizonycha consueta Péringuey (*nec* Kolbe), 1908, p. 700 (***syn. nov.***).

Length 14–17 mm. Breadth 7–10 mm.

MALE

Colour testaceous to castaneous with head and pronotum darker. *Head* with labral emargination strongly acute; anterior clypeal face almost plane, a median gap present in its row of setiferous punctures; anterior edge of clypeus almost straight medially; clypeal carina evenly arcuate; frontoclypeal suture distinct; basal cephalic carina not strongly raised, bordered posteriorly by an irregular row of transversely confluent punctures; clypeal punctures slightly elongate; frontal punctures scabrose laterally; setae in clypeal and frontal punctures minute, white, recumbent. *Pronotum* with anterior border sinuate toward anterior angles; anterior and posterior angles obtuse; hind border not raised medially; lateral borders with stiff, outstanding setae slightly shorter than basal anterior tarsal segment; surface with two clearly indicated, transverse, subbasal, impunctate areas, one on either side of midline and with, in some examples, a vaguely indicated longitudinal median impunctate space; disc with punctures containing an inverted U-shaped groove and bearing white, narrowly squamiform setae, very slightly more conspicuous than those on head; punctures separated by one diameter or more as a rule, scabrose along anterior margin; intervals finely and faintly shagreened. Scutellum transverse, punctate laterally, punctures with setae as on pronotum; intervals faintly and finely shagreened. *Elytra* with punctures separated by their own diameter or a little more, bearing setae similar to those of pronotum; intervals almost or quite smooth; lateral borders with a mixture of long, outstanding, testaceous setae and minute, white setae from bases to level of hind coxae, with sparsely set, minute, white setae thence to apical borders. Pygidium transverse; variably convex; punctures separated by about one diameter or more, annulate or almost so, each with a minute, white, squamiform seta similar to those of elytra; intervals variable, sometimes finely and faintly shagreened, sometimes almost smooth. Metasternum, episterna and hind coxae variably setoso-punctate; metasternum with larger, squamiform setae—about twice as long and twice as broad as those of elytra—posterolaterally, elsewhere with long, fine, yellowish-white bristles; episterna for the most part with squamiform setae as on metasternum, a few long bristles also present on anterior half; hind coxae set with squamae as on metasternum except posteromedially where squamae are replaced by long, yellowish-white setae. Abdominal segments with punctures toward lateral margins bearing squamiform setae intermediate in size between those of metasternum and those of elytra; punctures toward midline very sparse, a single transverse row on each segment bearing long bristles, the remainder with minute, almost white setae; intervals with traces of fine shagreening toward lateral margins, almost smooth medially. *Legs* with anterior tibiae strongly tridentate; basal hind tarsal segment two thirds as long as second; tarsal claws with lower ramus about two thirds as long as upper and slightly less robust, upper ramus emarginate beneath apex; the shorter of the two apical spurs of the hind tibiae less than half as long as the other.

Genitalia: (Text-figs. 160 and 161.)

FEMALE. The smaller length-ratio of the apical spurs of the hind tibiae and the slightly shorter lamellae of the antennal club distinguish the *female* from the *male* of this species.

Type locality: " Prope fluvium Gariep " (N.H.R.M.).

Other material examined from: Cape Prov.: Umtata; " Cape of Good Hope "; Port St. John, Pondoland; Transkei (type of S. *consueta* Pér. and other examples) (S.A.M. and B.M. (N.H.)). Natal: Indaleni Dist., Richmond (B.M. (N.H.) and F.); Estcourt; Malvern; Weenen; New Hanover; " Natal " (F.); Southbroom; Melmoth, Zululand; Durban (type of S. *plausibilis* Pér.) (S.A.M.). Transvaal: Middelfontein, nr. Nylstroom. S. Rhodesia: Bulawayo (F.).

Total material seen: 50 examples.

There are six specimens in the Boheman collection bearing the name S. *neglecta* Boh. Of these, four bear the data " Ovambo De Vylder ". As De Vylder did not visit S. Africa until 1871 and as Ovamboland is in S-W. Africa, these specimens cannot belong to the original series from which the species was described in 1857. Of the two other specimens, one bears the data " Damara Africae ". This again is in S-W. Africa and would not have been referred to by Boheman as " Prope fluvium Gariep ". The four Ovambo specimens and the example from Damara are all of S. *puncticollis* Boh. (p. 164), a species erroneously synonymized with S. *neglecta* Boh. by Péringuey.

The sixth example with the name S. *neglecta* bears the data " Caffraria J. Wahlb. [erg.] Type " TYPUS ". This specimen agrees well with Boheman's description of S. *neglecta*. Much of the material referred to in the *Insecta Caffrariae* was collected by Wahlberg and there is thus no evidence that this last example is not of the series upon which Boheman based his description of S. *neglecta*. This sixth example is here accepted as the type of the species; the description given above and the synonymy is based upon it.

I have been able to examine the type specimens of Péringuey's two species, S. *plausibilis* and S. *consueta* and there is no doubt that they are conspecific with S. *neglecta* Boh. Péringuey presumably interpreted S. *neglecta* Boh. from one of the five specimens misidentified in the Boheman collection and referred to above. Thus he was led into the error of redescribing the true *neglecta* under a new name.

Kolbe (1895, *Stett. Ent. Zeit.* **56**: 356), described a S. *consueta* from east Africa. Dalla Torre in the *Coleopterorum Catalogus* (pars. 49, p. 152) records S. *consueta* Pér. in such a way as to make it appear that Péringuey was redescribing Kolbe's species. In fact it is clear that he was describing what he believed to be a new species as he made no reference to Kolbe at the time.

S. Scabiosa Pér.

Schizonycha scabiosa Péringuey, 1904, p. 246.

Length 14–15·5 mm. Breadth 6·75–7·75 mm.

MALE

Castaneous, unicolorous. *Head* with labral emargination rightangled or slightly acute ; anterior clypeal face slightly convex vertically, with a moderate median gap in its row of setiferous punctures ; anterior edge of clypeus straight medially, broadly rounded laterally ; clypeal carina arcuate, not always very strongly so ; frontoclypeal suture visible ; vertex sharply angled, with a vaguely indicated transverse carina ; clypeal punctures slightly elongate, their inner borders only sharply formed, bearing laterally directed setae not much longer than the diameter of a puncture ; frontal punctures transverse or obliquely transverse, closely-set, slightly scabrose, bearing small setae hardly larger than those of clypeus. *Pronotum* (Text-fig. 39) with anterior border sinuate laterally but not directed obliquely backward toward anterior angles ; posterior angles obtuse ; posterior margin without a raised hind border in front of scutellum ; lateral borders set with stiff, outstanding, testaceous setae a little shorter than basal anterior segment ; surface as a rule with very narrow, transverse, subbasal impunctate areas ; discal punctures separated by more or less one diameter, each containing an inverted U-shaped groove and bearing a small, white, narrowly squamiform seta slightly longer in most cases than the diameter of its puncture ; punctures usually more closely set along anterior margin ; intervals between punctures finely shagreened. Scutellum transverse (3 : 4) ; punctate laterally ; setae in punctures usually larger and more conspicuous than those of pronotum ; intervals finely shagreened. *Elytra* with punctures separated by their own diameter or a little less, bearing setae similar to those of pronotal disc ; intervals between punctures almost smooth ; lateral borders with outstanding setae from bases to about level of fourth abdominal segment, setae thence to apicosutural angles minute, scarcely discernible. Pygidium transverse (3 : 4) ; convex ; annulate-punctate, punctures separated by more or less one diameter and bearing setae similar to those of elytra ; intervals finely and faintly shagreened as a rule. Metasternum, episterna and hind coxae setoso-punctate ; setae in metasternal punctures principally long, subrecumbent, deep yellow hairs, a few white, appressed, squamiform setae often present posterolaterally ; metepisterna with long yellow setae anteriorly and internally, punctures along external margin and on posterior half usually bearing large, white, appressed, squamiform setae as well as a few yellow hairs ; punctures of hind coxae bearing long, fine, yellow setae except anterolaterally where they are squamiform as on epimera. Abdominal segments with coarse, annulate punctures along lateral margins separated by about their own diameter ; punctures on discs of segments separated by more, sometimes by as much as two diameters ; each segment with a more or less irregular row of outstanding hairs across it ; other punctures bearing white, squamiform setae which are progressively more conspicuous from middle toward lateral margins ; intervals finely shagreened along extreme lateral margins, almost smooth elsewhere. *Legs* (Text-fig. 46) with anterior tibiae tridentate, the basal tooth occasionally rather feebly produced ; basal hind tarsal segment between one half and two thirds as long as the second ; tarsal claws of anterior legs with upper ramus shorter and finer than lower; claws of middle and hind legs with upper ramus longer than lower and emarginate beneath apex.

Genitalia (Text-figs. 162 and 163).

FEMALE. Unknown.

Type locality: Péringuey records it as Uitenhage (Cape Province). The label on the type specimen narrows this down to Dunbrody which is near Blue Cliff in southern central Cape Province (S.A.M.).

Other material examined from: "Pr. b. Sp. Krebs" (Z.M.B.). "Capland" (coll. Staudinger) (F.).

Total material seen: 3 examples.

S. kochi sp. n.

Length 13–14 mm. Breadth 6·5–7 mm.

MALE

This species is very closely related to both *S. mimocontinens* (p. 159) and *S. continens* (p. 158), scarcely differing from them other than by the characters referred to in the key to species and in the following particulars: the punctures of the pronotal disc are usually more widely separated and the derm is generally darker and with a more noticeably red tone.

Genitalia (Text-figs. 152 and 153).

FEMALE. Very similar to the *male* but for the shorter lamellae of the antennal club and for the fact that the apical spurs of the hind tibiae have a length-ratio of much less than 2 : 1.

Holotype: A *male* in the Museum G. Frey, Munich. Mooisplaats, Östl. Transvaal xi.49 Leg. C. Koch.

Paratypes: 1 *male*, 5 *females* with same data as the holotype (F. and B.M. (N.H.)). 1 *male* Pretoria (W.L.D.) (Distant Coll.). 1 *male* Pretoria 31.10.05 (no collector). 1 *female* Potschefstroom, Transvaal 1.1952 Leg. C. Koch. (F.).

S. matabelana Pér.

Schizonycha matabelana Péringuey, 1908, p. 679.

Length 9 mm. Breadth 5 mm.

MALE

Derm pale testaceous with head and pronotum darker. *Head* with labral emargination acute; anterior face of clypeus slightly reflexed medially, feebly convex vertically, with a broad median gap in its row of setiferous punctures; clypeal carina strongly arcuate; frontoclypeal suture clearly visible medially, following line of clypeal carina laterally; vertex with a fine, clearly raised transverse carina; clypeal punctures elongate, their internal borders raised; frontal punctures with their anterior borders tuberculate. *Pronotum* with anterior border strongly sinuate laterally, directed obliquely backward to anterior angles ; posterior angles strongly obtuse, very briefly rounded ; posterior margin with a strongly raised hind border in front of scutellum ; outstanding setae along lateral borders scarcely more than half as long as basal anterior tarsal segment ; surface with broad transverse, subbasal, impunctate areas ; discal punctures coarse, weakly asperose, each containing an inverted U-shaped groove and bearing a small, white, squamiform seta ; punctures separated by about one diameter, more strongly asperose along anterior margin than on disc ; a row of non-asperose punctures present along hind margin close to hind border ; intervals smooth, shining. Scutellum transverse (5 : 7) ; set with coarse, annulate punctures on basal half ; apical half impunctate ; intervals finely shagreened. *Elytra* with punctures separated by about one diameter, bearing more narrowly squamiform setae than pronotal punctures ; intervals slightly irregularly raised ; lateral borders set with outstanding setae for basal two thirds. Pygidium transverse ; annulate-punctate, punctures separated by about one diameter toward base, more sparsely arranged toward apex, bearing fine, outstanding setae ; intervals finely and faintly shagreened. Metasternum with fine setae anteriorly, with squamiform setae in punctures posteriorly and posterolaterally ; metepisterna with squamiform setae in punctures ; punctures of hind coxae also bearing squamiform setae ; setae on hind coxae smaller than squamiform setae of metasternum, setae of metepisterna smaller than those of hind coxae ; intervals between punctures of metasternum, episterna and hind coxae smooth. Abdominal segments sparsely punctured medially, punctures separated by more or less their own diameter toward lateral borders, bearing fine, slightly squamiform setae ; intervals finely shagreened, more faintly so toward midline. *Legs* with anterior tibiae tridentate, basal tooth rather feebly marked ; basal hind tarsal segment two thirds as long as second ; tarsal claws with upper ramus about half as broad at base as lower and distinctly shorter.

Genitalia (Text-figs. 148 and 149).

FEMALE. Unknown.

Type locality : Plumtree, S. Rhodesia (S.A.M.).

The holotype is the sole example of this species known to me.

S. puncticollis Boh.

Schizonycha puncticollis Boheman, 1857, p. 98.
Schizonycha puncticollis Boh., Péringuey, 1904, p. 222.
Schizonycha neglecta Péringuey (*nec* Boh.), 1904, p. 222.

Length 11·5–15 mm. Breadth 5·5–8 mm.

MALE

Colour varying from reddish-testaceous to dark red-brown. *Head* with labral emargination strongly acute ; anterior clypeal face slightly convex vertically, with or without a small median gap in its row of setiferous punctures ; anterior edge of clypeus variable, rounded or straight medially ; clypeal carina arcuate and usually angulate medially; basal cephalic carina feebly marked or absent; frons often shorter than clypeus in midline; clypeal punctures elongate; frontal punctures irregular in outline. *Pronotum* with anterior border sinuate; anterior and posterior angles obtuse; lateral borders not or very feebly crenulate; hind margin with an entire raised hind border between hind angles; disc set with transversely crescentic punctures which are progressively more closely set and slightly scabrose toward anterior margin; two transverse, subbasal, impunctate areas present; setae in punctures minute, scarcely squamiform except toward anterior angles; intervals between punctures almost smooth except for micropunctures. Scutellum with a varying number of punctures, each containing a minute seta similar to those of pronotal disc; intervals finely and faintly shagreened. *Elytra* with annulate punctures separated by their own diameter or slightly more, each with a squamiform seta slightly larger than those of pronotum; intervals smooth except for micropunctures; setae along lateral borders long and outstanding near bases, much shorter and inconspicuous behind level of hind coxae. Pygidium usually with close-set, annulate punctures, each bearing a small, slightly squamiform seta; intervals finely shagreened, sometimes irregularly raised. Metasternum, episterna and hind coxae closely punctured except for metasternal disc; setae in punctures sparse, fine except on episterna and posterolateral parts of metasternum where they are replaced by long, pointed, squamiform setae, much larger than any on upper surfaces; intervals finely, often faintly shagreened. Abdominal segments scabroso-punctate laterally and except for the penultimate segment which is quite closely punctured even in the middle, almost impunctate medially; most punctures bearing large, squamiform setae similar to those of metasternal epimera, but some, especially on penultimate segment, bearing long, outstanding, non-squamiform setae; intervals usually finely shagreened, but in some examples this is very difficult to see. *Legs* with anterior tibiae tridentate; basal hind tarsal segment almost or quite as long as the one following; tarsal claws with upper ramus as broad as lower and longer.

Genitalia (Text-figs. 172 and 173).

FEMALE. Very similar to the *male* but the lamellae on the antennal club are slightly shorter and the pygidium is less convex.

Type locality: " Near the Orange River " (N.H.R.M.).

Other material examined from: S-W. Africa: Tsumeb; Grootfontein; Otjimbumbe; Otjikondo; Nuragas; Reheboth; Windhoek (F.); Okahandja (B.S.S. and B.M. (N.H.)); Otjiwarongo (B.S.S. and B.M. (N.H.)); Omaruru; Zesfontein; Kamanyab; Mala; Ombombo; Outjo; Gobabis; Sissekab; Voitgrund; Otjikata Lake; Erundu; Satansplatz; Hoffnung; Swakop (N.H.R.M.). Bechuanaland: Ngami (F.); Tsane (F.); Moliwa Reserve (F.); Kanyu (F.); Sekhuma (F.); Ghanzi; Mongolatsila. Transvaal: Potgietersrust; Waterberg (F.); Naboomspruit (F.); Pretoria (F.); Kruger National Park (F.); Pienaars River. Natal: Weenen.

Total material seen: Upwards of 160 examples.

Through the kindness of Prof. Malaise of Stockholm, I have been able to examine the five specimens in the Boheman collection bearing the name *S. puncticollis*. They are all of one species and agree with the original description of *S. puncticollis*.

One of them bears the data " Caffraria J. Wahlb. 86 " and a red " Allotypus " label. Of the other four specimens, all of which bear the data " Svakop Africae, J. Wahlb.", one has a small white label attached bearing the word " Type ". Boheman gives the distribution of *S. puncticollis* as " In regione fluvii Gariepis " and so it is unlikely that he had the Svakop material before him when making the description. This being so, the " Type " label must be regarded as a later addition, even though it may have been attached by the author, and so cannot be taken as an indication that the specimen bearing it is the holotype of the species.

The " Caffraria " specimen on the other hand is almost certainly one that Boheman saw when describing *S. puncticollis*. It agrees with the description of the species and could well have been taken by Wahlberg in the region of the Orange River. I therefore propose that this specimen be regarded as the lectotype of *S. puncticollis* Boheman and I have labelled it accordingly.

Péringuey considered *S. puncticollis* Boh. and *S. neglecta* Boh. to be synonymous, choosing to accept *S. neglecta* as the valid name for the species. He was able to see part of the Boheman series of *S. puncticollis* and, as it is all of one species, interpreted the species correctly. As is stated on p. 161, the series labelled *S. neglecta* in the Boheman collection includes two species, the true *S. neglecta* and *S. puncticollis*. One of the latter bears a label on Péringuey's handwriting and has had its genitalia dissected and mounted in a manner characteristic of that author. This specimen is clearly the entity upon which he based his interpretation of the Boheman species *S. neglecta* and it is thus obvious how he came to synonymize *S. neglecta* and *S. puncticollis*. The true *S. neglecta* Boh. is redescribed on p. 160 of the present work and *S. neglecta* Péringuey (*nec* Boheman) is a synonym of *S. puncticollis* Boheman as is recorded above.

S. ovampoana Pér.

Schizonycha ovampoana Péringuey, 1904, p. 236.

Length 14·5 mm. Breadth 7 mm.

MALE

Derm testaceous with head and pronotum darker. *Head* (Text-fig. 24) with labral emargination acute ; anterior clypeal face strongly reflexed, not convex vertically, gap in its row of setiferous punctures very broad ; clypeal carina strongly arcuate, bluntly angled medially ; fronto-clypeal suture clearly visible medially ; basal cephalic carina not raised, head sharply angled at vertex ; clypeal punctures elongate, their internal borders sharply impressed ; frontal punctures round, discrete, more closely set posterolaterally than elsewhere. *Pronotum* with anterior border weakly sinuate toward anterior angles ; posterior margin with a raised hind border in front of scutellum ; posterior angles sharply formed ; lateral borders with setae sometimes as long as or longer than basal anterior tarsal segment ; surface with narrow, not entirely impunctate, transverse, subbasal declivities ; discal punctures annulate, irregularly separated by from one to several diameters, punctures similarly separated toward anterior margin ; punctures bearing minute setae shorter than the diameter of a puncture; intervals finely shagreened. Scutellum transverse (5 : 7); punctures annulate except mediobasally, bearing setae as in pronotal punctures; intervals finely shagreened. *Elytra* with punctures separated by more than one diameter, by considerably more in many parts, bearing minute setae as on pronotum; intervals finely shagreened; lateral borders with stiff, outstanding setae from bases to apical borders. Pygidium transverse; feebly convex; shallowly annulate-punctate, punctures variably separated, sometimes by less than one diameter, bearing minute setae as on pronotum; intervals finely shagreened. Metasternum, episterna and hind coxae with fine, non-squamiform setae in punctures. Abdominal segments sparsely punctate medially, more closely so toward lateral borders, punctures bearing either long and outstanding, or short, slightly squamiform setae; intervals finely shagreened. *Legs* with anterior tibiae tridentate, third tooth small, but distinct; basal hind tarsal segment slightly more than half as long as second; upper ramus of tarsal claws slightly shorter than lower and about half as broad.

Genitalia (Text-figs. 168 and 169).

FEMALE. Unknown.

Type locality: Omuramba Uamatako, Ovamboland (S.A.M.).

Other material examined from: Lonely Mine, Matabeleland.

Total material seen: 2 examples.

S. profuga Pér.

Schizonycha profuga Péringuey, 1904, p. 213.

Length 14–16 mm. Breadth 7–9 mm.

MALE

Derm castaneous. *Head* with labral emargination rectangular or slightly obtuse; anterior clypeal face almost plane vertically, gap in its row of setiferous punctures sometimes partly bridged by non-setiferous punctures; clypeal carina arcuate; frontoclypeal suture distinct; clypeal punctures longitudinally elongate; frontal punctures irregularly shaped; basal cephalic carina usually very strongly raised. *Pronotum* (Text-figs. 9 and 38) with anterior border strongly sinuate, anterior angles oblique; posterior margin with raised hind border sometimes almost entire between hind angles; lateral borders with stiff, outstanding setae as long as basal anterior tarsal segment; discal punctures each containing an inverted, U-shaped groove and bearing a minute, inconspicuous seta; punctures becoming somewhat scabrose anteriorly and anterolaterally; intervals smooth. Scutellum almost equilateral; punctures more or less confined to lateral areas; intervals finely shagreened. *Elytra* with punctures usually separated by less than their own diameter and containing an inconspicuous seta; intervals smooth, or almost so; lateral borders with stiff, outstanding setae from bases almost to apical borders. Pygidium transverse; annulate-punctate; intervals variable, but frequently smaller than puncture diameter and finely and faintly shagreened; punctures bearing setae similar to those of elytra. Metasternum, episterna and hind coxae set with long, non-squamiform setae, especially anteriorly ; punctures usually separated by one diameter or more. Abdominal segments setoso-punctate, slightly more closely so laterally where punctures are separated by about their own diameter ; setae in punctures larger than those of upper surfaces, but fine and non-squamiform ; intervals finely shagreened laterally. *Legs* with anterior tibiae strongly tridentate ; basal hind tarsal segment distinctly shorter than the one following ; tarsal claws with upper ramus distinctly longer than lower.

Genitalia (Text-figs. 176 and 177).

FEMALE. Very similar to the *male*, but with slightly shorter lamellae to the antennal club, with the basal segment of the hind tarsi as long as the second segment and with the upper ramus of the tarsal claws only slightly longer than the lower.

Type locality : Sebakwe, S. Rhodesia (S.A.M.).

Other material examined from : S. Rhodesia : Salisbury (S.A.M., D.A.S.R. and B.M. (N.H.)) ; Umtali ; Mt. Chirinda ; Trelawney (D.A.S.R.) ; Norton (D.A.S.R.) ; Sebungwe (D.A.S.R.). S-W. Afr. : Tsumeb (S.A.M.). Port. E. Afr. : Delagoa Bay (F.) ; Nyassa ; " Mozambique ". Nyasaland : Blantyre (S.A.M.).

Total material seen : 36 examples.

S. livada n. n.

Schizonycha valida Péringuey (*nec* Boh.), 1904, p. 224.

Length 12–20 mm. Breadth 6–10 mm.

MALE

Colour variable from pale yellow-testaceous to castaneous or medium brown, head and pronotum usually darker than elytra. *Head* with labral emargination strongly acute ; anterior clypeal face vertically convex, with a clear median gap in its row of setiferous punctures ; anterior edge of clypeus straight or almost so medially, broadly rounded toward eyes ; clypeal carina arcuate medially, overlying frontoclypeal suture laterally ; vertex with a clearly visible transverse carina ; clypeal punctures elongate ; frontal punctures transverse or obliquely transverse, usually asperose ; clypeal and frontal punctures bearing minute setae, those toward lateral margins of frons larger and more conspicuous than those elsewhere. *Pronotum* with anterior border strongly sinuate laterally, sloping obliquely backward to anterior angles ; posterior angles obtuse ; posterior margin with an entire, or almost entire raised hind border between hind angles ; lateral borders with outstanding setae longer than basal anterior tarsal segment ; surface usually with clearly-marked, transverse, subbasal, impunctate areas ; disc set with slightly transverse punctures, each containing an inverted U-shaped groove and bearing a small, almost white, narrowly squamiform seta which arises from a minute, backwardly directed tubercle on the middle of the anterior border of each puncture ; setae about as long as the diameter of a puncture ; punctures scarcely more closely set anteriorly and anterolaterally, but usually asperose ; intervals finely shagreened, sometimes faintly so. Scutellum transverse (*c.* 7 : 9) ; punctate laterally ; punctures similar to those of pronotum and bearing similar setae; intervals finely shagreened. *Elytra* with punctures separated by about one diameter, bearing setae similar to or a little larger than those of pronotal disc; intervals finely shagreened; lateral borders with outstanding setae from bases to level of fourth or fifth abdominal segment. Pygidium transverse (7 : 9); more strongly convex transversely than longitudinally; annulate-punctate, punctures separated by from less than one to about two diameters over most of pygidium, more sparsely arranged apically and sometimes apicolaterally as well; punctures bearing setae similar to those on elytra; intervals finely shagreened. Metasternum, episterna and hind coxae densely set with long, fine, pale yellowish setae, a few setae of posterolateral parts of metasternum, episterna and lateral margins of hind coxae sometimes white and narrowly squamiform. Abdominal segments much more faintly punctured medially than laterally; each segment with a more or less regular row of punctures across it bearing subrecumbent yellow setae, other punctures on segments bearing small, appressed, white, narrowly squamiform setae, those along lateral margins usually distinctly larger than setae on elytra, those toward midline no larger than elytral setae, frequently smaller; intervals finely and faintly shagreened. *Legs* with anterior tibiae strongly tridentate; basal hind tarsal segment about two thirds as long as second; tarsal claws with upper ramus distinctly longer than lower and shallowly emarginate beneath apex, lower ramus obliquely truncate apically (Text-fig. 11).

Genitalia (Text-figs. 166 and 167).

FEMALE. Very similar to the *male*, but with much shorter lamellae to the antennal club, with less disparity between the lengths of the basal and succeeding segments of the hind tarsi and with a more bulbous abdomen.

Type locality: " Damara " (N.H.R.M.) (see p. 174).

Other material examined from: Cape Prov.: Kimberley. Transvaal: Potchefstroom (F.); Potgietersrust (F.); Letaba River (F.); Pretoria (Div. Ent. and B.M. (N.H.)); Zoutpansburg; Rustenburg; Middelfontein, nr. Nylstroom. Natal: Mkuzi, Zululand (Div. Ent.). Bechuanaland: Gaberones (F.); unlocalized. S-W. Africa: Sissekab; Otavifontein; Otjiwarongo (S.A.M.); Otjimbumbe (S.A.M.); Kaoko Otavi (S.A.M.); Grootfontein (S.A.M.) Swaziland: nr. Bremersdorp. Port. E. Afr.: Upper Buzi River; Delagoa Bay; Boana; Lourenço Marques. S. Rhodesia: Victoria; Salisbury; Matopo Hills. Nyasaland: " Nyasa " (no more detailed locality). Tanganyika Territory: Dodoma; unlocalized. Also " Caffraria " (N.H.R.M.) (see p. 176).

Total material seen: More than 68 examples.

Péringuey records the following additional localities: Transvaal: Klerksdorp; Waterberg. S. Rhodesia: " Neighbourhood of the Zambezi River."

The true *S. valida* of Boheman is redescribed on p. 172 of this paper.

S. citima Pér.

Schizonycha citima Péringuey, 1904, p. 225–1908, p. 702.

Length 15–17 mm. Breadth 7–8·5 mm.

MALE

This species is so closely related to the very variable *S. livada* that I have not found any reliable means of separating the two other than examination of the *male* genitalia. These seem to show a quite consistent difference.

The size range of *S. citima* appears to be more restricted than that of *S. livada* but this may well be an illusion created by lack of material.

Genitalia (Text-figs. 170 and 171).

FEMALE. It has not proved possible to separate the *female* of this species from that of *S. livada* other than by association.

Type locality: Manica, Rhodesia (S.A.M.).

Other material examined from: S. Rhodesia: Salisbury; Sebakwe (S.A.M.); Trelawney (D.A.S.R.); Hartley (D.A.S.R.); unlocalized (Nevinson coll., B.M. (N.H.)). Port. E. Africa: Caia; Mozamb. Nyassa. Nyasaland: Mlanje; Zomba; unlocalized.

Total material seen: 17 examples.

In his second contribution to the knowledge of *S. citima*, Péringuey refers to the extreme variability of the species and correlates this with geographical variation. I cannot confirm Péringuey's observations on geographical variation but it is quite obvious that the species is a variable one. At the same time as making these remarks Péringuey also quotes the following fresh localities for *S. citima*:

S. Rhodesia: Plumtree. Transvaal: Nylstroom. Bechuanaland: Vryburg. Orange Free State: Bothaville.

S. salisburiana Pér.

Schizonycha salisburiana Péringuey, 1904, p. 241.
Atys hypocrita Péringuey, 1904, p. 257 (***syn. nov.***).

Length 13·5–15·25 mm. Breadth 6–7 mm.

MALE

Derm castaneous with head and pronotum darker. *Head* with labral emargination almost rightangled; anterior clypeal face reflexed medially, vertically convex, with a broad median gap in its row of setiferous punctures; clypeal carina angulate medially, strongly raised; frontoclypeal suture distinct medially, following line of clypeal carina toward lateral borders; vertex with a strongly raised transverse carina across middle, carina less strongly raised near eyes; clypeal punctures slightly elongate, their internal borders sharply formed; frontal punctures more closely set than those of clypeus, irregularly formed, asperose laterally. *Pronotum* with anterior border strongly sinuate laterally, directed obliquely backward to anterior angles; posterior angles strongly obtuse; posterior margin with a strongly raised hind border in front of scutellum; lateral borders with outstanding setae about as long as basal anterior tarsal segment; surface with well-marked transverse, subbasal, impunctate areas laterally; disc set with punctures of varied separation, each containing an M-shaped groove and bearing a minute, inconspicuous seta; punctures strongly asperose along anterior margin; intervals finely shagreened. Scutellum transverse (3 : 4); variably punctate laterally; punctures annulate or containing an inverted U-shaped groove and bearing minute setae; intervals finely shagreened. *Elytra* with punctures separated by about one diameter, bearing minute setae as on scutellum; intervals almost smooth; lateral borders with outstanding setae from bases to level of penultimate abdominal segment. Pygdium transverse; weakly convex; punctures circular, sometimes separated by less than one diameter basally, by considerably more toward apical border; setae in punctures short, slightly squamiform, but outstanding; intervals finely shagreened. Metasternum, episterna and hind coxae with long, outstanding, non-squamiform setae in most punctures, large, squamiform setae in some, particularly on metepisterna. Abdominal segments almost impunctate medially, pluripunctate laterally, punctures here separated by more or less one diameter, annulate, bearing setae similar to those of metasternum or, in many instances, narrowly squamiform setae; intervals very faintly and finely shagreened. *Legs* with anterior tibiae strongly tridentate; basal hind tarsal segment a little shorter than second; tarsal claws with upper ramus about half as broad at base as lower and shorter.

Genitalia (Text-figs. 174 and 175).

FEMALE. Differs from the *male* by the shorter lamellae of the antennal club, by the quadrate to slightly elongate pygidium which is strongly convex near the apex although almost flat longitudinally and by the antennae which are always ten-segmented whereas they are frequently, although not always, nine-segmented in the *male*.

Type locality: Salisbury, S. Rhodesia (S.A.M.).

Other material examined from: S. Rhodesia: Salisbury (B.M. (N.H.), S.A.M., D.A.S.R. and B.S.S.); Bent, Matabeleland; Chirinda District. Port. E. Africa: Upper Buzi River; " Mozambique." N. Rhodesia: N'Changa.

Total material seen: 21 examples.

Having been afforded the opportunity of examining the type specimens of both *S. salisburiana* and *A. hypocrita* I have no doubt that they are examples of one species. Exercising my right as first reviser, I select *Schizonycha salisburiana* Péringuey as the valid name for the species redescribed above.

S. spectabilis Pér.

Schizonycha spectabilis Péringuey, 1904, p. 239.

Length 18–20 mm. Breadth 8·5–10 mm.

MALE

Derm reddish testaceous to castaneous, shining. *Head* with labral emargination strongly acute; anterior clypeal face reflexed, almost plane vertically, gap in its row of setiferous punctures very broad; clypeal carina moderately arcuate; fronto-clypeal suture visible but not strongly marked; carina across vertex feebly raised; clypeal punctures elongate with their internal borders slightly raised; frontal punctures obliquely transverse with their antero-internal borders raised. *Pronotum* with anterior border strongly sinuate, slightly forwardly arcuate medially; posterior margin with a somewhat irregularly raised hind border, interrupted in parts by punctures, particularly laterally; lateral borders with outstanding setae shorter than basal anterior tarsal segment; transverse, subbasal, impunctate areas clearly marked; discal punctures variable, usually widely scattered; punctures closer toward lateral borders, much closer and slightly scabrose along anterior margin; punctures containing either an inverted U- or an M-shaped groove and bearing small, whitish, narrowly squamiform setae slightly shorter than the diameter of a puncture; intervals finely and faintly shagreened. Scutellum transverse; coarsely punctate basilaterally; punctures as on pronotum; intervals finely shagreened. *Elytra* with punctures variably separated by from one to several diameters, bearing small setae similar to those of pronotum; intervals almost smooth; lateral borders with stiff, outstanding setae from bases to about level of first abdominal segment. Pygidium slightly transverse; sparsely setoso-punctate, even more sparsely punctured apically; setae in punctures minute; intervals finely shagreened. Metasternum, episterna and hind coxae variously clothed; anterior margins of episterna with long setae in punctures, discs and posterior margins with punctures bearing large, squamiform setae, much larger than any on upper surfaces; metasternum with squamiform setae posterolaterally, these setae somewhat larger than those of episterna; hind coxae with punctures bearing large, squamiform setae anteriorly and laterally, setae fine and non-squamiform mediobasally. Abdominal segments variably punctate, more closely so laterally than medially; punctures bearing long, fine, non-squamiform setae, or large squamiform setae, or, especially on penultimate segment, minute setae as on upper surfaces; intervals finely shagreened laterally, almost smooth toward midline. *Legs* with anterior tibiae tridentate; basal hind tarsal segment five sixths as long as second; tarsal claws with upper ramus about half as broad as and a little shorter than lower; anterior tarsi very long.

Genitalia (Text-figs. 180 and 181).

FEMALE. Differs from the *male* by the shorter lamellae of the antennal club, the shorter and stouter tarsi and its less convex pygidium.

Type locality: Sebakwe, S. Rhodesia (S.A.M.).

Other material examined from: S. Rhodesia: Sebakwe (S.A.M.); "Rhodesia."

Total material seen: 3 examples.

This species is very closely related to the east African *S. major* Kolbe. In fact a longer series of the two may show that only one species is involved.

S. valida Boh.

Schizonycha valida Boheman, 1857, p. 96.

Length 18–21 mm. Breadth 9–10·5 mm.

MALE

Derm dark red-brown. *Head* with labral emargination acute; anterior clypeal face strongly reflexed, weakly convex vertically, median gap in its row of setiferous punctures moderate ; anterior edge of clypeus briefly truncate medially, broadly rounded laterally ; clypeal carina arcuate, more rounded medially than laterally ; frontoclypeal suture not clearly visible on dark derm ; vertex with a clearly-marked transverse carina ; clypeal punctures elongate, their inner borders more sharply formed than their outer borders ; frontal punctures close-set, irregular, usually transverse ; clypeal and frontal punctures bearing minute, inconspicuous setae. *Pronotum* with anterior border strongly sinuate laterally, almost directed obliquely backward to obtuse anterior angles ; posterior angles sharply formed, obtuse ; hind margin with a raised posterior border in front of scutellum, border more or less obliterated toward hind angles ; lateral borders with stiff, outstanding setae about as long as basal anterior tarsal segment ; surface with more or less clearly indicated subbasal, transverse, impunctate areas and frequently with an irregularly formed, longitudinal median impunctate area as well ; discal punctures coarse, variably separated by from one to several diameters, each containing an inverted U-shaped groove and bearing a minute seta about as long as the diameter of a puncture ; punctures asperose along anterior margin and with setae a little longer and more conspicuous than those on disc ; intervals finely shagreened. Scutellum transverse (3 : 5) ; punctures more or less confined to lateral margins, bearing setae similar to those of pronotal disc ; intervals finely shagreened. *Elytra* with punctures separated by about their own diameter, bearing setae similar to those of pronotal disc ; intervals with faint traces of shagreening and also with scattered micropunctures ; lateral borders with stiff, outstanding setae from bases to level of third or fourth abdominal segment. Pygidium transverse (17 : 21) ; strongly convex ; impunctate along midline ; punctures elsewhere annulate, separated by from one to two diameters, bearing minute setae, finer than those of elytra ; intervals finely and faintly shagreened. Metasternum, episterna and hind coxae bearing fine, rather sparsely set, yellowish setae in punctures, setae on posterior half of episterna sometimes much shorter than those elsewhere and faintly squamiform. Abdominal segments very sparsely punctured medially, more closely punctured laterally ; punctures along lateral margins comprising a single, irregular, transverse row of fine, suberect hairs supplemented by other shorter, more or less appressed, sometimes slightly squamiform setae ; penultimate segment with longer bristles across middle of segment as well as laterally ; intervals finely shagreened. *Legs* with anterior tibiae strongly tridentate, apical tooth feebly curved ; basal hind tarsal segment a little shorter than second (*c.* 6 : 7) ; tarsal claws with upper ramus about twice as long as lower and slightly broader.

Genitalia (Text-figs. 178 and 179).

FEMALE. Very similar to the *male* but with shorter lamellae to the antennal club, with the basal segment of the hind tarsi a little longer than the second segment, with the lower ramus of the tarsal claws broader, though distinctly shorter than the upper ramus. The pygidium of the *female* is sometimes more convex than that of the *male*.

Type locality : Around the Orange River (N.H.R.M.).

Other material examined from : Natal : Weenen. S. Rhodesia : Khami.

Total material seen : 4 examples.

The Boheman collection in Stockholm contains three specimens named *S. valida*. Two of these are *males* and bear the data " Damara". Both have had their genitalia dissected out and mounted by Péringuey and one bears a label " *Schizonycha valida* Ty.." in that author's handwriting. The third specimen is a *female* and bears the data " Caffraria J. Wahlb. Type ♀" together with a red " TYPUS " label. All three examples agree with the description of the species given by Boheman, but only the *female* comes within the habitat range recorded by Boheman.

Péringuey obviously interpreted *S. valida* from the two *males*. These two are not of the same species as the single *female* example referred to above. From their place of capture, it is clear that they do not form part of the original material upon which Boheman based *S. valida* and so the *female* specimen with its " Type " and " TYPUS " labels must be regarded as the sole survivor of the original material. I hereby select this specimen to be the lectotype of *Schizonycha valida* Boheman.

The species to which the two *males* belong had not been described prior to 1904. Therefore Péringuey effectively described a new species when he interpreted *S. valida* from this material. He thus created a homonym which is noticed and replaced on page 168 of the present paper.

S. vryburgensis sp. n.

Length 12·5–14 mm. Breadth 6·5–7 mm.

MALE

Colour testaceous. *Head* with labral emargination weakly acute ; anterior clypeal face feebly convex vertically, gap in its row of setiferous punctures broad ; clypeal carina strongly arcuate ; frontoclypeal suture visible medially, following line of clypeal carina laterally ; transverse carina across vertex well marked, sometimes grooved behind ; clypeal punctures elongate ; frontal punctures scabrose. *Pronotum* with anterior border slightly sinuate laterally, anterior angles directed forward ; posterior margin with a raised hind border which is distinct medially, but is interrupted toward lateral borders by punctures ; lateral borders with setae sometimes longer than basal anterior tarsal segment ; disc with irregularly and sparsely arranged punctures ; punctures more closely set toward anterior and lateral margins, scabrose along anterior margin ; punctures bearing small, but distinct, white, squamiform setae ; intervals finely but distinctly shagreened. Scutellum equilateral or slightly transverse ; punctate laterally ; intervals finely shagreened. *Elytra* with punctures separated by about their own diameter and bearing squamiform setae similar to those of pronotum ; lateral borders with outstanding setae from bases to level of fourth abdominal segment ; intervals between coarse discal punctures slightly roughened. Pygidium transverse, set with variably spaced, annulate punctures bearing longer and more slender squamiform setae than those of elytra ; intervals finely shagreened. Metasternum, episterna and hind coxae with long, fine, pale yellow hairs ; intervals smooth. Abdominal segments with punctures arranged in more or less distinct transverse rows, more closely set laterally where they bear squamiform setae somewhat larger than those of upper surfaces ; intervals finely shagreened laterally. *Legs* with anterior tibiae tridentate; basal hind tarsal segment about two thirds as long as second; tarsal claws with upper ramus nearly twice as long as lower.

Genitalia (Text-figs. 182 and 183).

FEMALE. Unknown.

Holotype: A *male* in the South African Museum, Cape Town. Vryburg, Cape Province 1917 (J. Brown).

Paratypes: 3 *males* with same data as holotype (S.A.M. and B.M. (N.H.)).

S. rufina Boh.

Schizonycha rufina Boheman, 1857, p. 97.
Schizonycha rufina Boh., Péringuey, 1904, p. 223.

Length 13–18 mm. Breadth 7·5–9·5 mm. (After Péringuey.)

MALE

Very like *S. vryburgensis* (p. 174) but for the characters referred to in the key to species, for its larger size and for the following:

The clypeal carina has a tendency to be bluntly angled medially. The pronotal and elytral setae are relatively smaller and less conspicuous than those of *vryburgensis*. The pygidium is usually less strongly transverse and a little more convex. The setae along the lateral margins of the abdominal segments are generally narrower and less conspicuous than the corresponding setae on *S. vryburgensis*.

Genitalia (Text-figs. 184 and 185).

FEMALE. Unknown to me, but stated by Péringuey to differ from the *male* by having slightly shorter tarsi.

Type locality: Boheman gives the whole of " Caffraria " as the habitat of this species (N.H.R.M.).

Other material examined from: Cape Province: Kimberley; Riversdale (S.A.M.). Natal: Port Natal. Transvaal: Rustenburg; Potchefstroom; Potgietersrust (S.A.M.); Messina (S.A.M.). Bechuanaland: Nata (F.); Ngami (F.); Vryburg. Orange Free State: Trompsburg (F.); Kroonstad. S-W. Africa: Windhoek area (F.); Windhoek (S.A.M.). Also from Nouport (F.).

Péringuey gives Lydenburg and Boksburg in the Transvaal as further localities for this species.

Total material seen: 28 examples.

Prof. Malaise has kindly made available to me the three specimens bearing the name *S. rufina* Boh.

All three specimens are *males* and bear the data " Caffraria, J. Wahlb.[erg], one having in addition a red " TYPUS " label. My findings in connection with these three specimens are set out below:

Specimen (1). This does not agree with Boheman's original description. It is an example of *S. usambarae* (p. 156).

Specimen (2). This example agrees with Boheman's original description, but is not the same species as the *S. rufina* Boh. interpreted by Péringuey. It is in point of fact an example of Péringuey's interpretation of *S. valida* Boh. (see p. 169).

Specimen (3). This specimen also agrees with the description given by Boheman of *S. rufina* and, in addition it is an example of the species interpreted by Péringuey as *S. rufina* Boh.

Although in theory either of specimens (2) and (3) could be selected as the lectotype of *S. rufina* Boh., selection of the second specimen would lead to confusion. The selection of the third example would cause no change in the present interpretation of Boheman's species and so I propose to take the latter course. I hereby select specimen No. (3)—which I have labelled in an appropriate manner, to be the lectotype of *Schizonycha rufina* Boheman.

S. straminea (Pér.)

Atys straminea Péringuey, 1904, p. 256.
Atys straminea Pér., Andreae, 1933, pp. 105, 106.

Length 11–12·5 mm. Breadth 6–6·75 mm.

MALE

Derm yellowish to testaceous. Head with a general appearance similar to that of *S. inverta* (p. 183) and *S. fallax* (p. 117); labral emargination acute; anterior clypeal face reflexed, vertically plane, with a broad median gap in its row of setiferous punctures; anterior edge of clypeus emarginate medially, arcuate laterally, extreme lateral borders oblique, but straight; clypeal carina arcuate medially, overlying frontoclypeal suture laterally; vertex angled, often with a roughly indicated, incomplete transverse carina; clypeal punctures small, irregular, often slightly elongate; frontal punctures variable, usually concentrated toward lateral margins, slightly asperose; setae in punctures minute, fine. *Pronotum* with anterior border arcuate medially, sinuate toward obtuse anterior angles; posterior angles obtuse; posterior margin without a raised hind border in front of scutellum; lateral borders set with setae much shorter than basal anterior tarsal segment; surface with transverse, subbasal, impunctate areas not well-defined; punctures of disc and margins similar to each other, separated by from less than one to about one and a half diameters, each containing an inverted U-shaped groove and bearing a minute, white seta about as long as the diameter of a puncture; intervals smooth, or almost so. Scutellum transverse (*c.* 3 : 4); punctate laterally; punctures usually separated by one diameter or less, similar to or slightly smaller than those of pronotum and bearing minute setae; intervals finely and faintly shagreened. *Elytra* with punctures separated by less than their diameter as a rule, bearing minute setae often shorter than the diameter of a puncture; intervals smooth, shining; lateral borders with rather shorter outstanding setae near shoulders than is usual in *Schizonycha*, setae between level of hind coxae and apices minute, not conspicuous. Pygidium transverse (*c.* 45 : 70); convex both longitudinally and transversely; closely punctured; punctures small, annulate, frequently separated by less than one diameter; intervals smooth or finely and faintly shagreened. Metasternum, episterna and hind coxae with setiferous punctures except almost impunctate mediobasal area of metasternum; setae long and obvious on anterior parts of metasternum and episterna, elsewhere very short and inconspicuous; intervals almost or quite smooth. Abdominal segments with punctures separated by a little more than one diameter laterally, by considerably more than this medially; punctures bearing white or yellowish setae which are for the most part about as long as the diameter of a puncture; some punctures, principally those of fifth segment and a more or less regular transverse row on each segment, bearing distinctly longer setae; intervals with very faint microsculpture, often very finely transversely rugulose. *Legs* with anterior tibiae tridentate; basal hind tarsal segment about half as long as second; tarsal claws with upper ramus finer than lower, but longer.

Genitalia (Text-figs. 186 and 187).

FEMALE. Very similar to the *male*, but with much shorter lamellae to the antennal club; with basal hind tarsal segment two thirds as long as second and with the pygidium almost flat longitudinally.

Type locality: Ovamboland, S-W. Africa (no exact locality) (S.A.M.).

Other material examined from: S.W. Africa: Grootfontein (S.A.M.). S. Rhodesia: Mafunga-busi (D.A.S.R.); Salisbury (B.M. (N.H.) and D.A.S.R.). N. Rhodesia: Chingola; Feira, Zambezi (S.A.M.). Transvaal: Rustenburg. Nyasaland: Cholo.

Total material seen: 29 examples.

S. rhodesiana Moser

Schizonycha rhodesiana Moser, 1920, p. 24.

Length 14 mm. Breadth 7–8 mm.

MALE

Colour dark testaceous to castaneous. *Head* with labral emargination markedly acute (45°–60°); anterior clypeal face scarcely convex, median gap in its row of setiferous punctures broad; clypeal carina arcuate medially, not strongly raised; fronto-clypeal suture distinct; transverse carina across vertex somewhat feebly raised; clypeal punctures closely set, elongate; frontal punctures transverse or obliquely transverse. *Pronotum* with anterior border sinuate toward anterior angles which are directed obliquely forward; posterior margin without a raised hind border; lateral borders strongly crenulate, bearing outstanding setae often as long as basal anterior tarsal segment; surface with distinct transverse, subbasal, impunctate areas, elsewhere set with coarse punctures separated by from one half to one and one half diameters, each containing an inverted U-shaped groove and bearing a small, but conspicuous, white, squamiform seta; punctures somewhat scabrose along anterior margin; intervals finely and faintly shagreened. Scutellum transverse (4 : 7); closely and coarsely punctate except mediobasally and along lateral borders; punctures bearing setae similar to those of pronotum; intervals finely shagreened. *Elytra* with punctures separated by less than one diameter except near scutellum, each bearing a seta similar to those of pronotum ; intervals with faint traces of shagreening ; lateral borders with long, outstanding setae from bases to level of second or third abdominal segment, setae thence to apicosutural angles mostly minute and white with an occasional longer, testaceous bristle. Pygidium with entire surface set with annulate punctures separated by less than their diameter and bearing short, white, outstanding, squamiform setae ; intervals finely, but quite strongly shagreened. Metasternum, episterna and hind coxae with punctures usually separated by about one diameter, episternal punctures a little larger than those of metasternum and hind coxae ; punctures of episterna bearing some white, narrowly squamiform setae as well as long, fine hairs ; setae in punctures of metasternum and hind coxae usually long and fine, a few setae on posterolateral parts of metasternum and lateral coxal areas similar to squamiform setae of metasternal epimera ; intervals finely and faintly shagreened. Abdominal segments more closely punctured laterally than medially ; punctures annulate with anterior borders tuberculate, bearing either long, outstanding, yellowish testaceous setae or short, white, subrecumbent, squamiform setae, the latter more especially laterally and anterolaterally ; intervals finely and faintly shagreened, more noticeably so toward lateral borders. *Legs* with anterior tibiae strongly tridentate ; basal hind tarsal segment slightly shorter than second ; tarsal claws of anterior legs with upper ramus shorter and finer than lower, claws of middle and hind legs with upper ramus slightly longer than lower.

Genitalia (Text-figs. 188 and 189).

FEMALE. Broader than the *male* and with the pygidium less convex longitudinally and with the basal hind tarsal segment almost or quite as long as the one following.

Type locality : Rhodesia (Z.M.B.).

Other material examined from : S. Rhodesia : Salisbury (B.M. (N.H.) and D.A.S.R.). Tanganyika Terr. : Kigonsera (B.S.S.).

Total material seen : 7 examples.

S. manicana Pér.

Schizonycha manicana Péringuey, 1904, p. 232.

Length 14·5–15·5 mm. Breadth 6–7·5 mm.

MALE

General colouring the same as that of *S. rhodesiana*. Head almost identical with that of *rhodesiana* except for the characters referred to in the key to species. The *pronotum* differs from that of *rhodesiana* in that the anterior border is more strongly sinuate laterally and slopes obliquely backward to the anterior angles, and in that the setae in the punctures of the pronotal disc are a little smaller and less conspicuous. The *elytra* have finer and less conspicuous setae in their punctures and the outstanding setae along the lateral borders approach more closely to the apical borders than is the case in *S. rhodesiana*. The pygidium differs from that of *rhodesiana* as shown in the key. The undersides of the two species are extremely alike, but a difference exists in the legs (Text-fig. 47). In *S. manicana* the upper ramus of all the tarsal claws is finer and shorter than the lower.

Genitalia (Text-figs. 192 and 193).

FEMALE. Slightly broader than the *male*; with the antennal club having distinctly shorter lamellae; with the pygidium more transverse and almost concave medially; with the upper ramus of the middle and hind tarsal claws as long as the lower and with the apical border of the last abdominal segment shallowly excised on either side of the arcuate middle section instead of being simply shallowly emarginate medially as it is in the *male*.

Type locality: Manica, S. Rhodesia (S.A.M.).

Other material examined from: S. Rhodesia: Salisbury (B.M. (N.H.) and D.A.S.R.); Lomagundi (D.A.S.R.); Gwelo (D.A.S.R.). Belgian Congo: S.E. Katanga, 4,000 ft.

Total material seen: 13 examples.

S. constrata Pér.

Schizonycha constrata Péringuey, 1904, p. 221.

Length 13–14 mm. Breadth 7–8 mm.

MALE

Colour ferrugineous. *Head* with labral emargination strongly acute; anterior clypeal face vertically convex with a wide gap in its row of setiferous punctures; anterior edge of clypeus truncate medially; clypeal carina strongly arcuate; frons about twice as long in midline as clypeus; both clypeus and frons with irregularly formed punctures, frons with an anteromedian impunctate area. *Pronotum* with anterior borders slightly sinuate laterally; anterior and posterior angles obtuse; lateral borders regularly crenulate and with setae as long as basal anterior tarsal segment; basal border not raised medially; surface with two transverse, subbasal, impunctate, declivous areas, one on either side of midline; disc irregularly punctured, each puncture containing an inverted U-shaped groove and bearing a white, squamiform seta about as long as the diameter of a puncture; intervals finely shagreened. Scutellum punctate laterally, intervals finely shagreened. *Elytra* with punctures separated by about their own diameter, each with a squamiform seta slightly smaller than those on pronotum; intervals smooth; lateral borders with long, outstanding, yellowish-testaceous setae from bases to level of hind coxae, setae near bases as long as basal anterior tarsal segment, becoming shorter posteriorly. Pygidium slightly transverse; annulate-punctate, punctures often larger toward upper angles; setae in punctures recumbent, squamiform, slightly longer and more obvious toward upper angles; intervals finely shagreened. Metasternum, episterna and hind coxae closely punctured, even across middle of foremost; usually with long, fine, outstanding setae in punctures; posterolateral parts of metasternum, posterior parts of episterna and lateral margins of hind coxae often with a few large, white, recumbent, squamiform setae as well. Abdominal segments with punctures across midline more or less restricted to a single row on each bearing short, suberect, yellowish setae ; punctures more numerous toward lateral margins, a few here also with outstanding, yellowish setae, but most with recumbent, white, squamiform setae as long as, or slightly longer than, those of elytra ; intervals finely, but very faintly shagreened. *Legs* with anterior tibiae tridentate, basal tooth well-marked ; basal hind tarsal segment slightly shorter than the one following ; tarsal claws with lower ramus a little more than half the length of upper and almost as broad at base, upper tooth shallowly and broadly emarginate beneath apex.

Genitalia (Text-figs. 190 and 191).

FEMALE. Unknown.

Type locality : Pretoria, Transvaal (S.A.M.).

Other material examined from : Transvaal : Pretoria ; Heidelburg.

Péringuey records Waterberg, Transvaal as a locality for this species.

Total material seen : 7 examples.

S. inostralis sp. n.

Length 15 mm. Breadth 8·25 mm.

MALE

Derm deep pitchy-red, shining. *Head* with labral emargination weakly acute ; anterior clypeal face plane, reflexed medially, gap in its row of setiferous punctures broad ; clypeal carina strongly arcuate, rather less strongly raised than is usual for the genus ; frontoclypeal suture clearly marked ; clypeal punctures almost circular ; frontal punctures closely set, irregularly shaped. *Pronotum* with anterior border markedly sinuate laterally, almost sloping obliquely backward to anterior angles ; posterior angles sharp, but not very strongly obtuse ; crenulate lateral borders set with setae considerably shorter than basal anterior tarsal segment ; posterior margin without a raised hind border in front of scutellum ; surface without clearly indicated transverse, subbasal impunctate areas ; disc with coarse, closely set punctures, frequently separated by much less than one diameter, each bearing a small, but conspicuous squamiform seta ; intervals finely and faintly shagreened. Scutellum transverse (5 : 7) ; coarsely setoso-punctate laterally ; punctures similar to those of pronotum ; intervals finely shagreened. *Elytra* with punctures separated by less than their own diameter as a rule, bearing small, but obvious, squamiform setae ; intervals almost smooth, sometimes with faint traces of shagreening ; lateral borders with stiff, outstanding setae from bases to level of hind coxae, thence to apicosutural angles with small, white setae interspersed occasionally by longer bristles. Pygidium transverse, coarsely annulate-punctate, more closely so basally where they are separated by less than one diameter ; punctures bearing setae finer than those of elytra ; intervals somewhat irregularly raised, with faint traces of shagreening in some parts. Metasternum, episterna and hind coxae with stiff, outstanding, yellowish setae or, on the latter two areas, fine, squamiform setae, much longer than any on upper surfaces ; coarse punctures annulate and, except for mediobasal area of metasternum, separated by less than their diameter. Abdominal segments annulate-punctate, each puncture tuberculate anteromedially and bearing either a short, white, narrowly squamiform seta, or a longer, fine, yellow, non-squamiform bristle ; squamiform setae longer than those of elytra, but shorter than those of metepisterna and hind coxae ; punctures separated by less than one diameter toward lateral borders, by more than one diameter medially ; intervals smooth except along extreme lateral margins where they are finely shagreened. *Legs* with basal (third) external tooth of anterior tibiae feeble ; basal hind tarsal segment about two thirds as long as second ; tarsal claws of anterior legs with upper ramus shorter and finer than lower ; upper ramus of tarsal claws of middle and hind legs almost or quite as long as lower.

Genitalia (Text-figs. 194 and 195).

FEMALE. Unknown.

Holotype : A *male* in the South African Museum, Cape Town. Resolution, Grahamstown [Cape Province] 1930 (Miss Walton).

Paratype : One with the same data as the holotype, but " Oct.–Nov. 1928 ".

S. abrupta sp. n.

Length 16–17 mm. Breadth 8·5–9 mm.

MALE

Derm castaneous, somewhat shining ; head, pronotum and elytra almost unicolorous. *Head* with labral emargination slightly obtuse (Text-fig. 18) ; anterior clypeal face not convex vertically, with a brief median gap in its row of setiferous punctures ; anterior edge of clypeus briefly straight medially, sometimes slightly emarginate ; clypeal carina weakly arcuate ; frontoclypeal suture usually not clearly visible ; transverse carina on vertex usually weakly arcuate when viewed from above, not strongly raised, with a row of contiguous punctures immediately behind it ; clypeal punctures elongate ; frontal punctures more or less radially arranged around a centre situated immediately behind frontoclypeal suture ; setae on frons and clypeus minute, white or yellowish, slightly more conspicuous toward eyes. *Pronotum* with anterior border very slightly sinuate, anterior angles directed obliquely forward ; posterior margin without a raised hind border medially ; lateral borders with stiff, outstanding setae a little longer than basal anterior tarsal segment ; surface with narrow, transverse, subbasal, impunctate areas, one on each side ; disc with coarse punctures each containing an inverted U-shaped groove and separated by less than one diameter in most places, more sparsely arranged posterolaterally ; punctures bearing small, white, recumbent, narrow setae, not much larger, if at all, than diameter of punctures ; intervals finely and faintly shagreened. Scutellum transverse ; closely annulate-punctate laterally ; intervals between punctures finely and faintly shagreened ; punctures bearing small setae similar to those on pronotum. *Elytra* with punctures separated by slightly more than one diameter, each with a seta similar to those on pronotum ; intervals between punctures very slightly roughened ; lateral borders with stiff, outstanding, yellow setae from bases to level of hind coxae or slightly beyond ; setae behind level of hind coxae along lateral and apical elytral borders usually minute, white, recumbent. Pygidium slightly transverse, feebly convex vertically, strongly convex horizontally ; annulate-punctate ; punctures separated by one diameter or more, bearing minute setae, often scarcely more than half as long as the diameter of a puncture ; intervals faintly and finely shagreened. Metasternum, episterna and hind coxae annulate-punctate, punctures separated by more or less their own diameter except on sparsely punctate posteromedian area of metasternum ; punctures bearing long, fine, deep yellow setae. Abdominal segments with white, slightly squamiform setae in punctures toward lateral margins ; setae smaller and much less conspicuous toward midline ; intervals almost smooth except along extreme lateral margins. *Legs* with anterior tibiae strongly tridentate ; basal hind tarsal segment distinctly shorter than second (3 : 5–3 : 4) ; tarsal claws with lower ramus less than half as long as upper and widely divergent from it (Text-fig. 10).

Genitalia (Text-figs. 206 and 207).

FEMALE. Differs from the *male* by having reduced, non-functional wings. The antennal club has shorter lamellae ; the tarsi are shorter ; the body is more rounded ; the metepisterna, hind coxae and postero-lateral areas of the metasternum bear some white, squamiform setae as well as long, fine hairs ; the length-ratio of the apical spurs of the hind tibiae is much less than 2 : 1 whereas in the *male* it is almost exactly 2 : 1.

Holotype : A *male* in the British Museum (Nat. Hist.). Longhope, Cape Province Jan.–Feb. 1928 (Miss E. Gough).

Paratypes : 2 *males* with same data as holotype. (B.M. (N.H.) & (Z.M.B.)). 1 *female* "Cap. Krebs" (Z.M.B.). 1 *female* "Pr. b. Sp. Lichtenst."

S. deceptor sp. n. (Text-fig. 1)

Length 14–14·5 mm. Breadth 7·5 mm.

MALE

This species is very closely related to *S. abrupta*, described above. The unusual formation of the elytral epipleurae is a character which readily distinguishes it from its close relative and is used in the key to species. In other respects *abrupta* and *deceptor* are very alike. The description of the former applies equally well to *deceptor* except for the characteristics listed below.

The species is smaller and reddish testaceous in colour, the derm being moderately shining. The *head* has the labral emargination rightangled, the median gap in the row of setiferous punctures along the anterior face of the clypeus is moderately broad and the frontoclypeal suture is clearly visible. The pronotum has the discal punctures slightly more widely spaced. The *elytra* are a little more sparsely and less regularly punctured and the intervals are more noticeably sculptured ; the lateral borders have the long, outstanding setae confined to between the bases and the level of the hind border of the metasternum, the setae behind this point are very short and directed more or less vertically downward. The pygidium is finely, but quite strongly shagreened between coarse punctures.

Genitalia (Text-figs. 196 and 197).

FEMALE. Unknown.

Holotype : A *male* in the Museum G. Frey, Munich. Trompsburg [Orange Free State] 26.10.48 Leg. C. Koch.

Paratypes : 8 with same data as holotype (F. and B.M. (N.H.)). 1 *male* Hondeklipbaai [Namaqualand, Cape Province] 16.11.48 (No collector) (F.).

S. inverta (Pér.)

Atys inverta Péringuey, 1904, p. 254.

Length 11·5 mm. Breadth 6 mm.

MALE

Colour pale testaceous. *Head* with labral emargination very slightly obtuse; anterior clypeal face reflexed medially, not vertically convex; gap in its row of setiferous punctures broad; clypeal carina moderately arcuate; frontoclypeal suture distinct; basal cephalic carina moderately well-marked; frons and clypeus with irregularly and rather sparsely arranged punctures. *Pronotum* with anterior border faintly sinuate laterally, if at all; posterior margin without a raised hind border in front of scutellum; setae along lateral borders shorter than basal anterior tarsal segment; disc with punctures separated by their own diameter or more, each containing an inverted U-shaped groove and bearing a most minute seta; no subbasal impunctate areas present; intervals between coarse punctures smooth. Scutellum multipunctate, especially laterally; intervals finely and faintly shagreened. *Elytra* with deep, close punctures separated by one diameter or less, each bearing a minute seta a little more conspicuous than those of pronotal punctures; intervals smooth; lateral borders set with rather short outstanding setae near shoulders, setae elsewhere minute. Pygidium transverse, with closely set, circular punctures, often separated by less than one diameter; intervals smooth or somewhat wrinkled, not shagreened. Metasternum, episterna and hind coxae almost glabrous, a few short setae present on anterior parts of metasternum. Abdominal segments with setiferous punctures separated toward lateral margins by about one diameter, becoming progressively more sparsely arranged toward midline; intervals very faintly shagreened toward lateral borders, if at all, smooth on disc. *Legs* with anterior tibiae tridentate; basal hind tarsal segment very little more than half as long as the one following; upper ramus of tarsal claws scarcely longer than lower.

Genitalia (Text-figs. 198 and 199).

FEMALE. Unknown.

Type locality : Delagoa Bay, Port. E. Africa (S.A.M.).

Other material examined from : Nyasaland : Mlanje.

Total material seen : 2 examples.

Péringuey's type specimen has the head and thorax missing and the genitalia, which have been dissected out and mounted, are damaged. They are, however, unlike any other south African species (although they resemble the genitalia of some species from other parts of Africa). The peculiar prolongation of one side of the apical borders of the hind tibiae (Text-fig. 48) is very characteristic, but in other respects this species is very similar to S. *straminea* Pér. (p. 176).

S. minor sp. n.

Length 10 mm. Breadth 5·5–6 mm.

MALE

Colour piceous red. *Head* with labral emargination almost rightangled; anterior clypeal face slightly convex vertically, gap in its row of setiferous punctures moderately broad; clypeal carina strongly arcuate and slightly angulate medially; frontoclypeal suture readily visible; transverse carina on vertex distinctly formed; clypeal punctures elongate; frontal punctures irregularly scabrose. *Pronotum* with anterior angles slightly forwardly produced, anterior border almost evenly emarginate; posterior margin without a raised hind border in front of scutellum; surface with annulate punctures bearing small, fine setae; punctures separated by less than one diameter except medially and basilaterally; intervals between punctures smooth except for micropunctures; lateral borders set with stiff, outstanding setae shorter than basal anterior tarsal segment. Scutellum equilateral, bearing a few punctures, especially anteriorly; intervals finely shagreened. *Elytra* with punctures separated for the most part by one diameter or less, bearing small, fine setae; intervals between coarse punctures roughened, set with micropunctures; lateral borders with long, outstanding setae near shoulders, shorter, subrecumbent setae posteriorly. Pygidium with annulate punctures separated by about their own diameter basally, by considerably more than one diameter toward apex; punctures bearing small, fine setae similar to those on elytra; intervals finely shagreened. Metasternum, episterna and hind coxae sparsely set with short, non-squamiform setae; intervals between punctures finely shagreened. Abdominal segments, except for the last two, each with a single transverse median row of punctures, pluripunctate laterally; punctures bearing short, fine setae; intervals almost smooth except along extreme lateral margins. *Legs* with anterior tibiae tridentate; basal hind tarsal segment almost as long as second; tarsal claws with upper ramus distinctly longer than lower.

Genitalia (Text-figs. 200 and 201).

FEMALE. Differs from the *male* in being more rounded in outline. It is wingless and has the humeral calli of the elytra reduced in prominence. The lower ramus of the tarsal claws is much shorter than the upper and curves away from it sharply. The metasternal epimera have a few, slightly squamiform setae in their punctures as well as non-squamiform hairs.

Holotype: A *male* in the South African Museum, Cape Town. Grootfontein, S-W. Protect.[-ectorate] Jan. 1920 (R. W. Tucker).

Paratype : 1 *female* Withdrai, Südl. Kalahari 8.5.48 (no collector) (F.).

In general facies, this species is like a small example of S. *saga* Pér. (p. 198) or a slightly large specimen of S. *minima* Pér. (p. 205), but the absence of the long setae at the base of the mentum place these two species in a different major section of the key. Also the punctation of S. *saga* differs markedly from that of S. *minor* and in the case of S. *minima*, the setae of the upper surfaces are large, conspicuous and distinctly squamiform.

S. perforata Burm.

Schizonycha perforata Burmeister, 1855, p. 267.
Schizonycha ciliata Péringuey (*nec* Burm.), 1904, p. 203 (***syn nov.***).

Length 20·5–23 mm. Breadth 8–9·5 mm.

MALE

Colour variable, usually castaneous with head and pronotum slightly darker than elytra. *Head* (Text-fig. 21) with labral emargination slightly obtuse (100–110°) ; anterior clypeal face vertically convex, with a moderately broad median gap in its row of setiferous punctures ; upper anterior edge of clypeus sharply emarginate medially ; clypeal carina forwardly angulate medially, longitudinal median clypeal carina usually well-marked, especially anteriorly ; vertex without a raised transverse carina ; clypeal punctures elongate ; frontal punctures irregular, closely set. *Pronotum* with anterior border strongly sinuate ; anterior angles strongly obtuse ; anterior margin strongly convex near anterior angles ; posterior angles obtuse ; crenulate lateral borders bearing setae often longer than basal anterior tarsal segment, especially in posterior half ; posterior margin without a raised hind border in front of scutellum ; disc with a longitudinal median impunctate area and two transverse, subbasal, impunctate areas ; elsewhere closely scabroso-punctured, each puncture with a small, white, narrowly squamiform seta ; intervals finely shagreened and with scattered, minute punctures as well. Scutellum pluripunctate, especially laterally ; intervals finely shagreened. *Elytra* with large, setiferous punctures separated by more than their own diameter, setae a little longer than on pronotum ; intervals set with micropunctures ; lateral borders with stiff, outstanding setae from bases almost to apices, setae palely testaceous, decreasing in length toward apical borders of elytra. Propygidium with transverse rows of closely-set, transverse punctures. Pygidium slightly transverse ; convex ; more closely punctured over upper half than elsewhere ; punctures somewhat scabrose over upper half ; all punctures setiferous, setae longer basilaterally ; intervals finely shagreened. Metasternum, episterna and hind coxae closely punctured, long setae in punctures giving pectus a densely villose appearance. Abdominal segments with punctures more closely set laterally, some of them scabrose, some punctures bearing long, outstanding setae, others with recumbent, squamiform setae varying in size although usually distinctly larger than any of the upper surfaces ; intervals finely shagreened. *Legs* with anterior tibiae strongly tridentate ; basal hind tarsal segment as long as or slightly longer than second ; upper ramus of all tarsal claws longer than lower and emarginate beneath apices.

Genitalia (Text-figs. 204 and 205).

FEMALE. Apart from the shorter lamellae of the antennal club and the tendency to have a slightly less transverse pygidium, there is practically no difference between the two sexes of this species.

Type locality: Cape of Good Hope (coll. Drege) (Univ. Halle).

Other material examined from: Cape Province: Port Nolloth; Bowesdorp (S.A.M.); Concordia Mine (S.A.M.); Namaqualand (no more detailed locality); Between Kamieskroon and Springbok (S.A.M.).

All the above localities are in the northwestern part of Cape Province.

Total material seen: 12 examples.

Having had the opportunity to study the material, a single *male* example, standing in the Burmeister collection over the name *Sch. perforata*, I have discovered that it is the species interpreted by Péringuey as *S. ciliata* Burm. The true *S. ciliata* Burm. is redescribed on p. 146 of the present paper.

S. abscondita sp. n.

Length 12–14 mm. Breadth 6·5–7·5 mm.

MALE

Derm castaneous. *Head* with labral emargination rightangled; anterior clypeal face reflexed medially, plane or feebly convex vertically, with a broad median gap in its row of setiferous punctures; anterior edge of clypeus straight or weakly emarginate medially, arcuate laterally; clypeal carina strongly arcuate, bluntly angled medially; frontoclypeal suture clearly visible; vertex not sharply angled and without a transverse carina; clypeal punctures about twice as long as broad, usually separated by about one transverse diameter, bearing minute, white setae as long as the transverse diameter of a puncture; frontal punctures transverse or obliquely transverse, slightly asperose, separated by up to one transverse diameter longitudinally, usually by much less than this transversely, bearing setae similar to those of pronotal punctures. *Pronotum* (Text-fig. 31) with anterior border arcuate medially, sinuate toward obtuse anterior angles; posterior angles obtuse; posterior margin with a raised hind border in front of scutellum; lateral borders with outstanding setae longer than basal anterior tarsal segment; surface with clearly-marked transverse, subbasal impunctate areas; punctures of disc and margins annulate or nearly so, separated by from less than one to about two diameters; punctures each with a minute, white seta about as long as its diameter; disc usually with a longitudinal median impunctate space; intervals with faintly indicated shagreening and with scattered micropunctures as well. Scutellum transverse (*c.* 5 : 7); punctate laterally; punctures usually slightly smaller than those of pronotum, each containing an inverted U-shaped groove and bearing a minute seta about as long as the diameter of a puncture; punctures separated by up to about one diameter; intervals finely and faintly shagreened. *Elytra* with punctures separated by about one diameter or less, bearing minute setae shorter than the diameter of a puncture; intervals almost smooth; lateral borders with outstanding setae from bases to level of fourth abdominal segment, setae thence to apices few, scattered, minute. Pygidium transverse (5 : 7); convex; closely annulate-punctate; punctures separated for the most part by less than one diameter and bearing fine setae not or only a little longer than their diameter; intervals finely, often faintly shagreened. Metasternum, episterna and hind coxae with long, fine, yellowish setae in punctures except on posterior parts of episterna, posterolateral parts of metasternum and lateral margins of hind coxae where setae are shorter and often white. Abdominal segments with punctures separated by about one diameter along lateral margins, progressively more widely separated toward midline; each segment with a more or less regular, single row of outstanding setae across its middle; setae in other punctures variable; other setae on discs minute, other setae toward and along lateral margins larger, often much longer than the diameter of a puncture; intervals almost smooth medially, finely shagreened along lateral margins of segments. *Legs* with anterior tibiae tridentate; basal hind tarsal segment four fifths as long as second; tarsal claws with upper ramus longer than lower and shallowly emarginate beneath apex.

Genitalia (Text-figs. 202 and 203).

FEMALE. Very similar to the *male*, but with the basal hind tarsal segment as long as the one following, with a more swollen abdomen and with the lamellae of the antennal club distinctly shorter.

Holotype: A *male* in British Museum (Nat. Hist.). Transvaal 1897 (A. Ross).

Paratypes: 1 *male* with same data as holotype. 1 *male* Johannesburg, TP [Transvaal] Sept., 1919 Ent. S N. 2845. 1 *male* Pretoria [Transvaal] 3.10.14. 1 *male* Pretoria, Transvaal Oct. 16 1915 " On grapevine foliage ". 1 *male* ditto but Nov. 6 1915. 1 *female* Pretoria, Transvaal Oct. 10 1915. 2 *females* Pretoria Tvl. 28.ix.1921. 1 *female* Cedara N P. [Natal] Oct. 1949 Entomologist S N. 3924. 1 *male* Bedford View, Jhbg., Transvaal Nov. 1952 (A. L. Capener). 1 *male* Rustenburg Transvaal 12.xii.52 (A. L. Capener). 1 *female* ditto but 10.xii.52. 1 *male* Naboomspauit [Naboomspruit], N. Transvaal 1.49 (Zumpt) (F.). 1 *female* Pretoria, S. Afr. XII.50 (Zumpt) (F.).

Although this species bears a strong superficial resemblence to *S. fimbriata* Brske. (p. 207), the setae at the base of the mentum in *S. abscondita* cause it to appear earlier in the key to species. The other differences between the two species are referred to in their respective descriptions.

S. capensis Burm.

Schizonycha capensis Burmeister, 1855, p. 269.
Shizonycha fraudulenta Péringuey, 1904, p. 226 (***syn nov.***).

Length 15·5–16 mm. Breadth 7·5–8 mm.

MALE

Testaceous to ferrugineous. *Head* with labral emargination almost exactly right-angled; anterior clypeal face not or slightly convex vertically, with a moderate median gap in its row of setiferous punctures; anterior edge of clypeus straight medially, broadly rounded laterally ; clypeal carina moderately to strongly arcuate ; frontoclypeal suture clearly visible ; vertex more or less sharply angled, without a transverse carina, but with its place marked by a row of very closely set punctures giving the effect of a transverse groove ; clypeal punctures slightly elongate, separated by less than one diameter ; frontal punctures transverse and obliquely transverse, also separated by less than their own diameter ; punctures of both clypeus and frons bearing minute, inconspicuous setae. *Pronotum* with anterior border almost evenly emarginate, emargination somewhat flattened medially ; anterior angles obtuse ; posterior angles obtuse ; posterior margin without a raised hind border in front of scutellum ; lateral borders with outstanding setae longer than basal anterior tarsal segment ; surface with clearly-marked, transverse, subbasal, impunctate areas ; discal punctures annulate or containing an inverted U-shaped groove, punctures separated by from less than one to almost two diameters, bearing minute, white, narrowly squamiform setae about as long as the diameter of a puncture ; punctures a little more closely set along anterior margin, but not asperose ; intervals between punctures finely shagreened. Scutellum strongly transverse (2 : 3 or more) ; punctate laterally, punctures bearing similar setae to those of pronotum ; intervals finely shagreened. *Elytra* with punctures separated by slightly less than one diameter as a rule, bearing minute, white, squamiform setae very like those of pronotum ; intervals with faint traces of shagreening ; lateral borders with outstanding setae from bases to level of fourth or fifth abdominal segment. Pygidium transverse (*c.* 7 : 9) ; convex both longitudinally and transversely ; punctures annulate, separated by about their own diameter or a little more basilaterally, by more elsewhere, especially along midline and apical margin which are more or less impunctate ; punctures bearing minute, white setae similar to those of elytra ; intervals finely and faintly shagreened. Metasternum, episterna and hind coxae with most punctures bearing long, fine, yellow setae ; a few punctures, particularly on posterior half of metepisterna, posterolateral parts of metasternum and extreme lateral margins of hind coxae bearing large, appressed, white, squamiform setae, much larger than any on upper surfaces. Abdominal segments with squamiform setae in most punctures, those toward midline of segments less conspicuous than elytral setae, those toward and along lateral margins larger and more conspicuous than elytral setae ; each segment, except the penultimate, with, in addition to the above, a more or less regular single row of punctures across it bearing short, suberect, yellow, non-squamiform setae ; penultimate with some much longer setae in punctures ; interval between punctures faintly shagreened. *Legs* with anterior tibiae tridentate, the basal tooth being rather faintly produced ; basal hind tarsal segment a little more than two thirds as long as the second ; tarsal claws of all legs with upper ramus longer than lower and emarginate beneath apex.

Genitalia (Text-figs. 208 and 209).

FEMALE. Unknown to me. Burmeister indicates that he knew both sexes of this species, but does not say how they may be distinguished.

Type locality : S-W. Africa (Univ. Halle).

Other material examined from : " Cap. bonae Spei " (B.S.S.). And the holotype of *S. fraudulenta* Pér. which has no recorded locality (Z.M.B.).

Total material seen : 3 examples.

The Burmeister collections contain a single *male* specimen over the name *S. capensis.* It agrees with the original description of that species given by Burmeister and there is no reason why it should not be the last remaining example from the original series upon which Burmeister based his species.

Through the kindness of Dr. Delkeskamp, I have been able to examine the unique holotype of *S. fraudulenta* Pér. There is no doubt that it is conspecific with *S. capensis.* This vindicates the late Herr Brenske, who had identified the specimen described by Péringuey as *S. fraudulenta* as *S. capensis* Burm.

S. boschimana Pér.

Schizonycha boschimana Péringuey, 1904, p. 202.
Schizonycha litigiosa Péringuey, 1908, p. 680 (***syn. nov.***).

Length 13–14 mm. Breadth 6·5–7 mm.

MALE

Colour castaneous with head and pronotum somewhat darker. *Head* with labral emargination strongly obtuse ; anterior clypeal face vertically convex, without, or with a very brief median gap in its row of setiferous punctures (which runs very close to the lower edge of the anterior face of the clypeus in the middle) ; anterior edge of clypeus almost or quite truncate medially, depressed toward this point when viewed from in front ; clypeal carina strongly arcuate, less sharply raised than usual ; frons and clypeus almost equal in length along midline ; vertex not sharply angled and without a transverse carina ; surface of both clypeus and frons set with asperose punctures, those of clypeus slightly elongate, their internal borders sharply formed and weakly raised. *Pronotum* with anterior border strongly sinuate laterally, anterior margin strongly convex near obtuse anterior angles ; posterior angles obtuse ; lateral borders set with stiff, outstanding setae about as long as basal anterior tarsal segment ; hind margin without a raised posterior border in front of scutellum ; surface, except for two transverse subbasal areas and sometimes a longitudinal median impunctate area as well, set with slightly asperose punctures, more closely and strongly punctured anterolaterally ; punctures bearing minute setae ; intervals with very faint microsculpture. Scutellum sparsely punctured laterally ; intervals finely and faintly shagreened. *Elytra* with punctures separated by about their own diameter, each bearing a small, narrowly squamiform seta ; intervals between punctures finely roughened ; lateral borders fringed with outstanding setae from bases to apices, setae becoming progressively shorter toward apicosutural angles. Pygidium with scattered punctures, generally more closely set on basal half, each puncture bearing a very small, slightly squamiform seta ; intervals finely shagreened. Metasternum, episterna and hind coxae with punctures usually separated by about their own diameter, bearing either long, fine, very pale setae or, especially on the episterna, a mixture of long, fine setae and broad, squamiform setae much larger than any on upper surfaces. Abdominal segments with a mixture of long, outstanding setae, short, recumbent setae and squamiform setae in punctures; intervals finely shagreened. *Legs* with anterior tibiae strongly tridentate; basal hind tarsal segment as long as second; tarsal claws with lower ramus distinctly shorter and finer than upper ramus which is emarginate beneath its apex.

Genitalia (Text-figs. 210 and 211).

FEMALE. Broader than the *male*; with slightly shorter lamellae to the antennal club; with a slightly less transverse pygidium; with the basal hind tarsal segment a little longer than the one following and with the rami of the tarsal claws less closely applied to each other.

Type locality: Bushmanland, N-W. Cape Province (S.A.M.).

Other material examined from: Transvaal: Nylstroom (S.A.M.) (Holotype and other specimens of *S. litigiosa* Pér.).

Total material seen: 4 examples.

Péringuey described *S. boschimana* from the *female* only. When describing *S. litigiosa* at a later date he had both sexes before him. I have been able to examine the type specimens of *S. boschimana* and *S. litigiosa* and also a *female* specimen from the same series as the latter type. It is clear that *S. boschimana* and *S. litigiosa* are the same species.

S. geilenkeuseri Brske.

Schizonycha geilenkeuseri Brenske, 1898, p. 358.
Schizonycha exasperans Péringuey, 1904, p. 211 (***syn. nov.***).

Length 11·5–12·5 mm. Breadth 5·5 mm.

MALE

Derm testaceous with head and pronotum usually darker. *Head* with labral emargination very strongly obtuse; anterior clypeal face slightly convex vertically, with a narrow median gap in its row of setiferous punctures, row of punctures approaching very closely the lower anterior edge of the clypeus; upper anterior edge of clypeus semicircular (it may appear to be more or less truncate medially if viewed from above, but this is due to its being depressed medially (Text-fig. 25)); clypeal carina arcuate; frontoclypeal suture visible, not backwardly arcuate medially; head without a transverse carina on vertex and not sharply angled at vertex; frontal punctures irregular and scabrose; clypeal punctures more regular and usually elongate. *Pronotum* with anterior border strongly sinuate, anterior angles directed obliquely backward; posterior angles strongly obtuse; hind margin without a distinct raised posterior border in front of scutellum; lateral borders strongly sinuate behind anterior angles when viewed from the side, crenulate except for a short distance behind anterior angles, set with outstanding setae shorter than basal anterior tarsal segment; disc set with shallow, slightly transverse punctures, less widely separated anteriorly and laterally than elsewhere, setae in punctures minute, scarcely longer than the diameter of a puncture; intervals finely and faintly shagreened. Scutellum with a varying number of large, annulate punctures; intervals finely and faintly shagreened. *Elytra* with punctures separated by more than one diameter, by two or more diameters toward apices, punctures bearing minute, narrowly squamiform setae more conspicuous than those of pronotal disc; intervals very finely and faintly shagreened; lateral borders with outstanding, conspicuous setae near bases, setae elsewhere minute, inconspicuous. Pygidium slightly transverse; apical border more or less truncated; annulate-punctate, punctures separated by from one to two diameters toward upper margin, progressively more sparsely arranged toward lower border; intervals finely shagreened. Metasternum, episterna and hind coxae with punctures separated by their own diameter or more except on disc of metasternum which is almost impunctate; punctures of metasternum and hind coxae bearing long, fine, subrecumbent setae except for a few, slightly squamiform setae laterally; episterna with punctures, except those near anterior borders, bearing long, appressed, narrowly squamiform setae. Abdominal segments almost impunctate medially, punctures toward lateral margins set for the most part with recumbent, slightly squamiform setae intermediate in size between those of upper surfaces and those of metasternal epimera, some setae a little larger and suberect, a few, particularly on penultimate segment, much longer, suberect and bristle-like; intervals finely shagreened laterally. *Legs* with anterior tibiae strongly tridentate; basal hind tarsal segment as long as second segment; tarsal claws with upper ramus more than twice as long as lower and more robust at base.

Genitalia (Text-figs. 212 and 213).

FEMALE. Almost inseparable externally from the *male* except for a slightly more bulbous abdomen, an almost quadrate pygidium with a rounded apex, shorter hind tarsi and the lower ramus of the anterior tarsal claws which in the *female* is as broad as the upper ramus.

Type locality: " Kalahari-Wüste " (Z.M.B.).

Other material examined from: Transvaal: Rustenburg (S.A.M.—Type of *S. exasperans* Pér.). S-W. Africa: Maltahoehe; Voitgrund.

Total material seen: 5 examples.

In his description, Péringuey states that the anterior margin of the clypeus is broadly truncate, whereas in the type specimen it is semicircular. As mentioned in the description given above, the anterior edge of the clypeus is depressed medially with the result that, if viewed from above, the anterior border may appear truncate. This seems a more likely explanation of the apparent discrepancy between the description and the type than that the specimen made available to me was in fact not the type.

I have been able to examine, through the kindness of Dr. K. Delkeskamp of the Zoologisches Museum, Berlin, the *female* type specimen of *S. geilenkeuseri* Brske. I have no doubt that it is conspecific with the type specimen of *S. exasperans* Pér. kindly made available to me by the authorities of the South African Museum, Capetown.

S. meracula Pér.

Schizonycha meracula Péringuey, 1904, p. 211.

Length 9–11 mm. Breadth 4–5 mm.

MALE

Colour testaceous with head and pronotum somewhat darker. *Head* with labral emargination strongly obtuse, rounded medially; anterior clypeal face vertically plane, its row of setiferous punctures irregularly spaced; clypeal carina straight medially, arcuate toward lateral borders; vertex with a feebly indicated transverse carina, carina forwardly angled medially where it usually joins a blunt, weakly raised longitudinal median frontal carina; clypeal punctures elongate; frontal punctures asperose. *Pronotum* with anterior border sinuate toward anterior angles which are directed obliquely backward; posterior angles obtuse; posterior margin with a raised hind border in front of scutellum; lateral borders set with outstanding setae shorter than basal anterior tarsal segment; disc with a longitudinal median impunctate area and two transverse, subbasal, impunctate areas; elsewhere punctate, punctures sparsely set posteriorly, more closely set and asperose anteriorly; intervals indistinctly and finely shagreened. Scutellum transverse; coarsely punctate; intervals with traces of fine shagreening. *Elytra* with punctures separated by more than their own diameter as a rule; intervals thrown into folds in some places, especially near suture; setae in elytral punctures slightly more conspicuous than those of pronotum, but minute nevertheless; lateral borders with stiff, outstanding setae from bases to level of middle of metasternum, setae behind this point minute, inconspicuous. Pygidium quadrate or slightly transverse; sparsely annulate-punctate, punctures more closely set toward upper margin; intervals finely shagreened. Metasternum, episterna and hind coxae with punctures separated by about their own diameter, bearing long, non-squamiform setae; intervals faintly and finely shagreened. Abdominal segments with punctures somewhat scabrose and more closely set toward lateral margins, bearing short, recumbent setae which are, in some cases, slightly squamiform; intervals finely shagreened. *Legs* with anterior tibiae strongly tridentate; basal hind tarsal segment almost as long as the one following; tarsal claws not deeply cleft, the upper ramus distinctly longer than the lower and closely applied to it.

Genitalia (Text-figs. 214 and 215).

FEMALE. Extremely like the *male*, but with a slightly broader body and with shorter hind tarsi as a rule.

Type locality: "Walfish" [Walvis] Bay, S-W. Africa (S.A.M.).

Other material examined from: S-W. Africa: Okahandja; Windhoek (B.M. (N.H.) and F.).

Péringuey also records this species from Ovamboland.

Total material seen: 6 examples.

S. inscita (Pér).

Atys inscita Péringuey, 1904, p. 254.

Length 10·5 mm. Breadth 5·5 mm.

MALE

Derm pale testaceous with head and pronotum a little darker. *Head* with labral emargination strongly obtuse; anterior clypeal face slightly convex vertically, with a brief median gap in its row of setiferous punctures ; anterior edge of clypeus weakly rounded medially, more strongly so laterally, depressed medially ; clypeal carina not strongly raised, straight or feebly biarcuate medially ; frontoclypeal suture strongly biarcuate ; transverse carina across vertex feebly raised, sometimes replaced by a row of transversely confluent punctures ; frons usually with a feebly raised, longitudinal median carina extending from middle of vertex toward middle of frontoclypeal suture ; clypeal punctures sparse ; frontal punctures closely set, irregularly shaped ; antennae nine-segmented. *Pronotum* (Text-fig. 37) with anterior border sinuate laterally, anterior angles obtuse, anterior border directed very slightly backward to them ; posterior angles obtuse, very briefly rounded ; lateral borders crenulate, setae on them shorter than basal anterior tarsal segment ; hind margin without a raised posterior border in front of scutellum ; disc with transversely crescentic punctures separated by their own width or more, separation greatest toward base of pronotum ; transverse, subbasal, impunctate areas not well-marked ; intervals finely shagreened ; setae in punctures of pronotal disc minute, inconspicuous. Scutellum equilateral ; with scattered, transversely crescentic punctures ; intervals finely shagreened. *Elytra* with punctures separated by about their own diameter, each bearing a minute, greyish-white seta ; intervals roughened ; lateral borders with stiff, outstanding setae from bases to, or almost to apices. Pygidium transverse, very strongly convex ; set laterally with irregularly spaced, slightly transversely crescentic punctures, each bearing a small, slightly squamiform seta ; pygidium impunctate, or almost so medially ; intervals finely shagreened. Metasternum, episterna and hind coxae with emarginate punctures, often separated by their own diameter or more, each bearing a long, fine, non-squamiform seta. Abdominal segments scabroso-punctate laterally, punctures bearing non-squamiform setae of varying length. *Legs* with anterior tibiae strongly tridentate ; basal hind tarsal segment about half as long as second ; tarsal claws with lower ramus less than half as long as upper and less robust at base.

Genitalia (Text-figs. 216 and 217).

FEMALE. Unknown to me. Péringuey notes that the abdominal segments are " . . . more pubescent in the *male* than in the *female* ". The *female* should have ten-segmented antennae and it is very probable that its pygidium will be much less convex than that of the *male*.

Type locality : Lydenburg, Transvaal (S.A.M.).

Other material examined from : " Caffraria " (N.H.R.M.).

Total material seen : 2 examples.

Péringuey also records Sebakwe, S. Rhodesia as a locality for this species.

The record noted above as " Caffraria " is a specimen included in the series of specimens in the Boheman collection over the name *S. affinis* (p. 207).

S. globa sp. n. (Text-fig. 4)

Length 11–13 mm. Breadth 7–8 mm.

MALE

Colour black, antennae, tibiae and tarsi somewhat reddish, not very shining. *Head* with labral emargination almost rectangular ; anterior clypeal face feebly convex vertically, strongly reflexed and with a broad median gap in its row of setiferous punctures ; anterior edge of clypeus broadly truncate medially ; clypeal carina strongly arcuate ; clypeus somewhat shorter in midline than frons ; frontal punctures shallow, annulate ; clypeal punctures elongate ; vertex without a transverse carina. *Pronotum* with anterior border usually slightly sinuate laterally ; anterior and posterior angles obtuse ; hind margin with an unusually broad raised posterior border in front of scutellum ; lateral borders set with outstanding setae shorter than basal anterior tarsal segment ; surface with two transverse, subbasal impunctate areas ; disc with large punctures, more widely separated medially than toward anterior and lateral margins, each containing an annular groove or an inverted U-shaped groove ; disc sometimes with a longitudinal median impunctate area ; discal punctures each containing a minute seta, not as long as the diameter of a puncture ; intervals finely, but strongly shagreened. Scutellum variably sculptured ; finely shagreened, sometimes set with coarse punctures similar to those of pronotal disc. *Elytra* with punctures separated by about their own diameter, each bearing a minute seta similar to those in punctures of pronotal disc ; intervals finely, but strongly shagreened, more strongly so toward apices ; lateral borders arcuate, outstanding setae confined to between bases and level of middle of metasternum. Body wingless. Pygidium variably annulate-punctate with inconspicuous setae in punctures, setae slightly longer than those of elytral punctures ; intervals less strongly shagreened than those of elytra, surface often coarsely wrinkled. Metasternum episterna and hind coxae regularly punctured, punctures separated by about their own diameter and bearing short setae medially, posteriorly and laterally, setae in punctures on anterior parts of metasternum and episterna longer, outstanding ; metasternum unusually short, correlated with the wingless condition. Abdominal segments almost impunctate medially, scabroso-punctate laterally ; punctures bearing short, appressed setae similar to setae on posterolateral parts of metasternum ; intervals finely shagreened laterally, almost smooth toward midline. *Legs* with anterior tibiae tridentate, basal tooth well-marked although much smaller than second tooth ; basal hind tarsal segment distinctly shorter than second ; tarsal claws with upper ramus much shorter and finer than lower.

Genitalia (Text-figs. 218 and 219).

FEMALE. Very similar to the *male* except for the fact that the hind tarsi have the basal segment as long as or slightly longer than the second segment and the tarsal claws have the upper ramus a little longer than the lower, equally robust and somewhat divergent from it.

Holotype : A *male* in the British Museum (Nat. Hist.). Langkrans, Natal 1956 (Wattle Res[earch] Inst.[itute]).

Paratypes : 4 *males* and 7 *females* with the same data as the holotype. 4 *females* Vryheid, Natal Jan. 1940 ' D ' Alton) (Damaging foliage of young gum tree). 1 *male*, 2 *females* Vryheid, Natal 29.11.1953 (de Schwardt) (Damaging young wattle).

1 *male*, 4 *females* Natal Nov. 1929 (Chief Entomologist, Pretoria). 1 *female* Inyati, Natal Oct. 1955 (Wattle Res. Inst.) (On Wattle). 6 *females* Natal 28.11.1933 (Chief Entomologist, Pretoria). 1 *male*, 1 *female* Natal [Pieter] Maritz. [burg] (S.A.M.).

This species is unusual in that the wingless *male* has the rounded appearance of a *female*. In other species where the *male* has the wings reduced or absent, such as *S. natalensis* Brske. (p. 210), the *male* retains its more oblong form and the elytra still possess humeral callosities. From this it would appear that *S. globa* has been flightless for a longer period than any other known species of the genus.

S. squamifera Walleng.

Schizonycha squamifera Wallengren, 1881, p. 19.
Schizonycha squamifera Wallengr., Péringuey, 1904, p. 216.
Schizonycha lilliputana Brenske, 1898, p. 377.
Schizonycha lilliputana Brsk., Péringuey, 1904, p. 216.

Length 7·5–13 mm. Breadth 4·25–7·5 mm.

MALE

Although this species shows a very strong resemblance to *S. pseudosquamifera* (p. 152), the latter appears in a different section of the key to species because of the presence of a pair of stiff setae along the base of the mentum.

The present species is very closely related to *S. carbonaria* Boh. (below), differing from it by the character mentioned in the key to species and in that the setae along the lateral borders of the pronotum are relatively longer and that the apical borders of the elytra do not possess a fringe of short, fine, downwardly directed setae.

Genitalia (Text-figs. 220 and 221).

FEMALE. Differs from the *male* in being more rounded in outline, having the wings reduced to non-functional vestiges, having the humeral calli of the elytra reduced, having shorter lamellae to the antennal club and in having a less convex pygidium.

Type locality: " Transvaalia, Afr. merid." (Zoologiska Inst., Lund.).

Other material examined from: Transvaal: Johannesburg; Pretoria (B.M. (N.H.) and D.A.S.R.); Zoutpansburg; no exact locality (Fry Coll.). Natal: Estcourt; Frere; unlocalized (Andrewes Bequest). " Int. S. Afr." (Lord Derby Coll.). " Caffraria " (N.H.R.M.).

Other localities given by Péringuey: Cape Province: Stellenbosch. Natal: Durban; Umvoti. S-W. Africa: Ovamboland.

Total material seen: 34 examples.

Péringuey considered *S. lilliputana* Brske. to be a synonym of *S. squamifera*, basing this judgement upon three examples from Frere, Natal. I have also seen material from Frere which appears to differ from *S. squamifera* only in size. I feel that further collecting may establish the existence of some local race or geographical subspecies, but for the present I have adopted the Péringuey decision.

S. carbonaria Boh.

Schizonycha carbonaria Boheman, 1857, p. 99.
Schizonycha carbonaria Boh., Péringuey, 1904, p. 215.

Length 9–10·5 mm. Breadth 5·5–6·5 mm.

MALE

Colour black except for antennal and tarsi which are generally piceous. *Head* with labral emargination rightangled or feebly acute; anterior clypeal face vertically plane, median gap in its row of setiferous punctures sometimes bridged by non-setiferous punctures; anterior edge of clypeus truncate, emarginate medially; clypeal carina strongly arcuate; frons longer in midline than clypeus; vertex not carinate, head not sharply angled at vertex; clypeal punctures elongate, their external borders sharply formed; frontal punctures obliquely transverse, usually containing an inverted, U-shaped groove; clypeal and frontal punctures bearing short, narrowly squamiform setae, those of clypeus pointing toward lateral borders, those of frons directed obliquely backward from an anteromedian point. *Pronotum* with anterior border evenly emarginate, anterior angles almost rightangled; posterior angles obtuse; hind margin usually with a narrow, raised posterior border in front of scutellum; lateral borders with stiff, outstanding setäe usually slightly shorter than basal anterior tarsal segment; surface without transverse, subbasal, impunctate areas, sometimes with a longitudinal median impunctate area; disc coarsely, but shallowly punctured, punctures usually separated by about their own diameter or less, each containing an inverted U-shaped groove and bearing a seta similar to those on head; intervals finely, but distinctly shagreened. Scutellum slightly broader than long; punctate laterally, punctures similar to those of pronotal disc and similarly setiferous; intervals finely, but distinctly shagreened. *Elytra* shallowly punctured, punctures separated by more than one, sometimes by more than two diameters, bearing setae similar to those of pronotum; intervals finely, but strongly shagreened; outstanding setae along lateral borders from bases to level of hind coxae similar to setae along lateral pronotal borders, setae from level of hind coxae to apicosutural angles much shorter and more closely set, setae directed downward along apical borders. Pygidium transverse (10 : 13); convex; shallowly annulate-punctate, punctures usually concentrated in dorsolateral areas where they are separated by from one to two diameters; punctures bearing minute, yellowish-testaceous setae, somewhat finer than setae on elytral disc; intervals finely shagreened, though not as strongly as those of elytra. Metasternum, episterna and hind coxae with coarse punctures separated by their own diameter or more, very sparsely arranged on disc of metasternum; most punctures bearing recumbent, narrowly squamiform setae distinctly longer than those of upper surfaces, a few longer outstanding bristles present on anterior parts of metasternum and on mediobasal metasternal area. Abdominal segments with recumbent, slightly squamiform setae in faintly scabrose punctures toward lateral margins, setae intermediate in size between those of metasternal epimera and those of upper surfaces; punctures much more sparsely set medially; a few long, suberect setae present on penultimate segment; intervals finely shagreened laterally. *Legs* with anterior tibiae strongly tridentate; basal hind tarsal segment about as long as second; tarsal claws with upper ramus longer than lower and about as broad at base.

Genitalia (Text-figs. 222 and 223).

FEMALE. Wingless; more rounded in outline; with a flatter pygidium and slightly shorter lamellae to the antennal club.

Type locality: "Caffraria" (N.H.R.M.).

Other material examined from: "Caffraria" (N.H.R.M.). Natal: Ulundi; Quela; Frere; Willow Grange, Mooi River; Estcourt; Port Natal; "Natal" (no more detailed locality, Coll. Ertl, B.S.S.). Cape Province: "Griqualand" (B.S.S.). [This last locality is presumably Griqualand East, to the south east of the Drakensberg and immediately south of Natal and not Griqualand West which lies to the west of the Orange Free State.]

Total material seen: 20 examples.

Through the kindness of Prof. R. Malaise, I have been able to examine the five specimens named as *S. carbonaria* in the Boheman collection. The results of this examination are summarized below.

Specimen (1). Data: "Cap. B. Spei, Victorin" and a red "Allotypus" label. This is a male and has had its genitalia dissected out and mounted. It is a specimen of *S. globator* (F.) (p. 141). It does not agree with the description given by Boheman for *S. carbonaria*.

Specimen (2). Data: "Caffraria, J. Wahlb. Type" and a red "Typus" label. This specimen does not agree entirely with the description given by Boheman for *S. carbonaria*; particularly difficult to reconcile are the broad squamae in the pronotal punctures and the " . . . squamis erectis setiformibus . . . " referred to by the describer. This specimen is a *female* example of *S. squamifera* Wallengren (p. 195).

Specimens (3), (4) and (5). All bear the data "Caffraria, J. Wahlb." They are all *female*, agree well with the description of *S. carbonaria* given by Boheman and with *S. carbonaria* as interpreted by Péringuey.

In view of the fact that the specimen bearing the type label does not agree with the original description of the species it would seem advisable to disregard it and to select as a lectotype one of the three examples which do fit the description. This I propose to do and hereby select specimen No. (3) as the lectotype of *Schizonycha carbonaria* Boheman.

S. dissimilis Pér.

Schizonycha dissimilis Péringuey, 1904, p. 220.

Length 10·5–11·5 mm. (Péringuey gives—12·5 mm.). Breadth 5·5 mm.

MALE

Colour pale castaneous with head and pronotum more reddish in tone.

By far the closest relative of this species is *S. continens* Pér. (p. 158), the latter appearing in a different section of the key to species. In fact, if the absence of the basal setae of the mentum is not noticed in an example of S. *dissimilis*, it will easily key out to S. *continens*.

The description given above for S. *continens* will apply equally well to S. *dissimilis*, but the *male* genitalia of the two species exhibit constant differences. Those of S. *dissimilis* are distinctly less robustly constructed than those of S. *continens*, but the most easily observable difference occurs in the relative lengths of the basal piece and the parameres in the two species. This is clearly shown (Text-figs. 224 and 164) in the profile drawings of the two sets of genitalia.

Genitalia (Text-figs. 224 and 225).

FEMALE. Exhibits the same sexual differences as the female of S. *continens*.

Type locality: Waterberg, Transvaal (S.A.M.).

Other material examined from: Transvaal: Nelspruit. Bechuanaland: Francistown (F. and B.M. (N.H.)).

Total material seen: 6 examples.

As I have noted above, Péringuey gives an upper size limit for this species of 12·5 mm. long. My own experience accords the species a maximum length of 11·5 mm. This discrepancy may well be accounted for by the fact that I have seen only six specimens of the species, but it is also possible that Péringuey based his estimate of the size range upon a mixed series containing examples of S. *continens* (size range 12·5–13 mm. long).

S. saga Pér.

Schizonycha saga Péringuey, 1904, p. 219.

Length 12·5–13 mm. Breadth 6·5–7 mm.

MALE

Colour dark castaneous to piceous. *Head* with labral emargination very slightly obtuse; anterior clypeal face vertically convex, gap in its row of setiferous punctures sometimes bridged by non-setiferous punctures; clypeal carina strongly arcuate; frontoclypeal suture distinct; vertex without, or with a very feebly indicated transverse carina; clypeal punctures slightly elongate; frontal punctures irregular in size and spacing. *Pronotum* with anterior border evenly emarginate; anterior and posterior angles obtuse; hind margin without a raised posterior border in front of scutellum; lateral borders with stiff, outstanding setae often longer than basal anterior tarsal segment; disc, except for two transverse, subbasal impunctate areas and sometimes an irregularly-shaped, small, median impunctate area, closely and deeply punctured, each puncture containing an inverted U-shaped groove and bearing a small, but distinct, squamiform seta; punctures separated by less than one diameter, especially anterolaterally; intervals subcoriaceous. Scutellum transverse; with a row of punctures along each lateral margin; intervals finely shagreened. *Elytra* with punctures separated by about one diameter, each bearing a squamiform seta similar to those of pronotal punctures; lateral borders with long, outstanding setae from bases to level of third abdominal segment; intervals between punctures almost smooth. Pygidium transverse; weakly convex; deeply annulate-punctate, punctures often separated by less than one diameter ; surface somewhat rugulose between punctures ; punctures bearing short, outstanding, squamiform setae except near apex where setae are longer and non-squamiform. Metasternum, episterna and hind coxae with long, coarse, yellowish-white setae in punctures, a few large, squamiform setae also present on episterna ; punctures deep and annulate. Abdominal segments closely punctured laterally, punctures arranged in irregular transverse rows, punctures on disc also arranged in transverse rows, but less closely set ; punctures sometimes bearing non-squamiform setae, but in most cases with short, appressed, squamiform setae, similar to those of elytra although usually a little narrower ; intervals slightly wrinkled, but not finely shagreened. *Legs* with anterior tibiae strongly tridentate ; basal hind tarsal segment almost as long as second ; tarsal claws with upper ramus as broad as lower and distinctly longer.

Genitalia (Text-figs. 226 and 227).

FEMALE. Extremely similar to the *male*.

Type locality : Worcester, Hex River (S.A.M.).

Other material examined from : Cape Province : Hex River (S.A.M.) ; Montagu (S.A.M.).

Total material seen : 3 examples.

S. perplexabilis Pér.

Schizonycha perplexabilis Péringuey, 1904, p. 220.

Length 13·5–15 mm. Breadth 6–7·5 mm.

MALE

Colour black to piceous. *Head* with labral emargination acute ; anterior clypeal face almost plane, median gap in its row of setiferous punctures broad ; clypeal carina strongly arcuate ; frontoclypeal suture visible ; transverse carina on vertex feebly raised at most ; frons and clypeus closely punctured, punctures bearing small, but conspicuous, white, squamiform setae. *Pronotum* with anterior border very feebly sinuate laterally ; hind margin with a somewhat irregularly raised posterior border in some examples ; setae along lateral borders almost as long as basal anterior tarsal segment ; surface without, in most examples, any clearly defined, transverse, subbasal impunctate areas ; disc with deeply impressed, annulate punctures, separated by much less than one diameter toward anterior margin, irregularly spaced posteriorly, but often separated by less than one diameter here also ; punctures bearing small, but distinct, white, squamiform setae ; intervals finely and rather faintly shagreened. Scutellum slightly transverse ; punctate laterally ; intervals finely shagreened. *Elytra* with punctures separated by slightly less than one diameter, each bearing a white, squamiform seta as on pronotum ; intervals finely, faintly and incompletely shagreened ; lateral borders with outstanding setae from bases to level of third or fourth abdominal segment. Pygidium weakly convex horizontally, almost flat vertically ; transverse ; annulate-punctate ; intervals variable in size, finely shagreened ; squamiform setae in punctures similar to those of elytra. Metasternum, episterna and hind coxae with, except along anterior margin of metasternum, squamiform setae in punctures; setae at least twice as long as those on upper surfaces; intervals finely and very faintly shagreened. Abdominal segments with punctures arranged in transverse rows, more closely set toward lateral borders; punctures toward lateral margins of first four segments bearing squamiform setae; each segment with a single transverse row of fine, outstanding non-squamiform setae; fifth segment with squamiform setae on disc as well as on lateral margins; intervals between punctures finely shagreened laterally, almost smooth medially. *Legs* with anterior tibiae strongly tridentate; basal hind tarsal segment almost as long as second; tarsal claws with upper ramus as broad at base as lower and distinctly longer.

Genitalia (Text-figs 228 and 229).

FEMALE. Very similar to the *male*, but usually slightly broader; the antennal club has relatively shorter lamellae and the basal hind tarsal segment is quite as long as the second segment.

Type locality: Sebakwe, S. Rhodesia (S.A.M.).

Other material examined from: S. Rhodesia: Bulawayo; Lonely Mine; Umtali; Sebakwe (S.A.M.); Trelawney (D.A.S.R.); Salisbury (D.A.S.R.).

Total material seen: 11 examples.

S. filiola Moser

Schizonycha filiola Moser, 1917, p. 254.

Length 9–9·5 mm. Breadth 4·5 mm.

MALE

This species is very closely related to *S. infans* (Pér.) (p. 202), separated from it as indicated in the key to species and by the following:

The hind margin of the pronotum has a feebly raised posterior border in front of the scutellum; the pronotal punctures are coarser; the setae along the lateral borders of the elytra are all short and subrecumbent except for a few near the shoulders. The metasternum is even more sparsely punctured than that of *S. infans*, the long setae on its anterior parts being shorter than those of *S. infans* and less densely arranged.

Genitalia (Text-figs. 230 and 231).

FEMALE. Differs from the *male* in being wingless, more rounded in outline and in having a relatively much shorter metasternum. The lamellae of the antennal club are much shorter. The tarsi are shorter and the basal segment of the hind tarsi is only a little shorter than the second segment whereas in the *male* it is about half as long as the second segment. The tarsal claws of the *female* all have the upper ramus longer than the lower and somewhat divergent from it.

Type locality: Port Natal (Z.M.B.).

Other material examined from: Natal: Frere; Van Reenen, Drakensberg; unlocalized (Nevinson coll.).

Total material seen: 12 examples.

S. dilucida Brske.

Schizonycha dilucida Brenske, 1898, p. 359.
Schizonycha exacerbans Péringuey, 1904, p. 213 (**syn. nov.**).

Length 11·5–13 mm. Breadth 5·75–6·75 mm.

MALE

Derm testaceous with head and pronotum darker. *Head* with labral emargination strongly acute; anterior clypeal face shallowly convex vertically, with a rather narrow median gap in its row of setiferous punctures; anterior edge of clypeus straight medially, broadly rounded laterally to eyes; clypeal carina strongly raised, evenly arcuate; frontoclypeal suture clearly visible medially, more or less overlain laterally by clypeal carina; vertex sharply angled and with a raised carina across middle five sevenths; clypeal punctures separated by less than one diameter, usually elongate and with their internal borders only sharply defined, bearing minute, white setae; frontal punctures transverse or obliquely transverse, separated longitudinally by a little less than one transverse diameter, transversely by less than one longitudinal diameter, bearing minute setae slightly more conspicuous than those of clypeus. *Pronotum* with anterior border sinuate laterally, directed obliquely backward to anterior angles; posterior angles obtuse; posterior margin with a raised hind border in front of scutellum; lateral borders with outstanding setae shorter than basal anterior tarsal segment; surface with clearly-marked, transverse, subbasal impunctate areas; punctures of disc slightly transverse, each containing an M-shaped groove and bearing a small, white, narrowly squamiform seta almost as long as the diameter of a puncture; separation of punctures varying from less than one to about two diameters; punctures along anterior margin smaller than those on disc, asperose; intervals smooth or sometimes finely shagreened. Scutellum slightly transverse (8 : 9); punctures more or less confined to lateral margins, circular or slightly transverse, bearing setae slightly smaller than those of pronotal punctures; intervals finely shagreened. *Elytra* with punctures separated by more or less their own diameter, bearing setae similar to those of pronotum; intervals between punctures almost smooth, with faint traces of shagreening; lateral borders with stiff, outstanding setae confined to between bases and level of middle of metasternum. Pygidium transverse (*c.* 5 : 6); strongly convex; punctures more or less annulate, separated by from less than one to almost two diameters, bearing minute, white, outstanding setae; intervals finely shagreened. Metasternum with punctures separated by more than their diameter for the most part, mediobasal area even more sparsely punctured; punctures on anterior half bearing long, fine, yellowish setae punctures elsewhere bearing short, white, lanceolate, appressed, squamiform setae, about twice as long as the diameter of a puncture; metepisterna with punctures separated by one diameter or less, bearing setae similar to those on posterior parts of metasternum; hind coxae with punctures separated by about one diameter and bearing setae similar to those of metepisterna; intervals between punctures of metasternum, episterna and hind coxae smooth or finely and faintly shagreened.

Abdominal segments with annulate, faintly asperose punctures separated by from one to about two diameters toward and along lateral margins, bearing setae intermediate in size between those of hind coxae and those of elytra ; punctures toward midline of abdominal segments progressively more sparsely arranged, reduced across middle to a single row of punctures bearing long, more or less outstanding, yellowish setae and a few other, scattered punctures bearing minute, inconspicuous setae ; intervals smooth. *Legs* with anterior tibiae tridentate ; basal hind tarsal segment about seven tenths as long as second ; tarsal claws with upper ramus longer than lower, almost as broad at base, emarginate beneath apex.

Genitalia (Text-figs. 232 and 233).

FEMALE. Very like the *male*.

Type locality : Bagamoyo, Tanganyika T. (Z.M.B.).

Other material examined from : S. Rhodesia : Sebakwe (Type of *S. exacerbans* Pér.—S A.M.). Filabusi. Port. E. Afr. : Caia, Zambesi ; unlocalized. Nyasaland : Chiromo. Tanganyika T : Bagamoyo (Z.M.B.).

Total material seen : 8 examples.

The synonymy of the two species is based upon a personal examination of the two *male* holotypes.

S. infans (Pér.)

Atys infans Péringuey, 1904, p. 256.

Length 10–10·5 mm. Breadth 5–5·5 mm.

MALE

Colour pale testaceous with head and pronotum slightly darker. *Head* with labral emargination obtuse ; anterior clypeal face vertically plane, median gap in its row of setiferous punctures moderately broad ; clypeal carina arcuate medially ; frontoclypeal suture clearly visible ; transverse carina on vertex scarcely raised, grooved behind ; clypeal punctures shallow, elongate ; frontal punctures obliquely transverse, shallow, their anteromedian borders slightly raised. *Pronotum* with anterior border strongly sinuate laterally, anterior angles obtuse, anterior border directed slightly backward toward them ; posterior margin with a sharply raised hind border in front of scutellum ; lateral borders shallowly crenulate, briefly sinuate before hind angles, set with setae shorter than basal anterior tarsal segment ; surface with short, narrow, transverse subbasal impunctate areas ; disc with close, coarse, round punctures bearing small setae which are slightly squamiform toward lateral margins of pronotum ; intervals finely shagreened. Scutellum almost as long as broad (7 : 8) ; coarsely punctured along lateral margins ; punctures bearing short, white, narrowly squamiform setae ; intervals finely and rather faintly shagreened. *Elytra* with punctures usually separated by their own diameter (by more toward apices) and bearing minute, white, slightly squamiform setae ; intervals very faintly coriaceous ; lateral borders set with outstanding setae from bases to about level of third abdominal segment, becoming progressively shorter toward this point, setae thence to apicosutural angles small, as short as on elytra, but finer. Pygidium transverse (7 : 9); with coarse, sparsely set, annulate punctures, more closely set basally; punctures bearing small, white, scarcely squamiform setae, a little finer than those of elytra; intervals finely and often faintly shagreened. Metasternum, episterna and hind coxae rather sparsely punctured, intervals often greater than one diameter, smooth; short, squamiform setae present on posterior half of episterna, posterolateral areas of metasternum and lateral parts of hind coxae, the last being longer than those elsewhere; setae in other areas long, non-squamiform. Abdominal segments almost impunctate medially, more obviously punctured laterally; punctures usually bearing setae similar to those on posterior halves of metasternal epimera; intervals finely shagreened laterally, smooth medially. *Legs* with anterior tibiae strongly tridentate; basal hind tarsal segment half as long as second; upper ramus of tarsal claws slightly more than half as long as second and much finer.

Genitalia (Text-figs. 234 and 235).

FEMALE. I have been able to examine a single example which I believe to be the *female* of *S. infans* (Pér.) It differs from the *male* in being wingless, more rounded in outline, having very much shorter lamellae to the antennal club and in having the upper ramus of all the tarsal claws slightly longer than the lower and somewhat divergent from it.

Type locality: Johannesburg, Transvaal (S.A.M.).

Other material examined from: Transvaal: Johannesburg. And "Cape of Good Hope" (ex coll. Reiche) ♀.

Péringuey records Frere, Natal as a locality for this species.

Total material seen: 7 examples.

S. corrosa Burm.

Schizonycha corrosa Burmeister, 1855, p. 270.
Schizonycha corrosa Burm., Péringuey, 1904, p. 252.
Atys corrosa (Burm.), Andreae, 1933, p. 106.
Atys humilis Péringuey, 1904, p. 258.
Atys humilis Pér., Andreae, 1933, p. 106.
Atys ovatula Pér. (*nec* Brenske), 1904, p. 255 (partim *female*).
Atys ovatula Pér. (*nec* Brenske), Andreae, 1933, p. 106 (partim *female*).

Length 12–13 mm. Breadth 6·5–7·5 mm.

MALE

Colour testaceous to dark castaneous with head and pronotum often slightly darker *Head* with labral emargination almost rightangled; anterior clypeal face reflexed medially, faintly convex vertically and with a broad median gap in its row of setiferous punctures; clypeal carina strongly arcuate medially, overlying frontoclypeal suture laterally; basal cephalic carina scarcely raised, grooved behind; clypeus with elongate punctures; frontal punctures transverse, containing inverted, U-shaped grooves with the arms of the "U" directed posterolaterally. *Pronotum* (Text-fig. 33) with anterior border feebly sinuate laterally; anterior angles almost rectangular ; posterior margin with a raised hind border in front of scutellum ; lateral borders crenulate for anterior half, almost without notches in posterior half, abruptly sinuate shortly before posterior angles ; lateral borders bearing setae generally shorter than basal anterior tarsal segment ; surface without well-marked transverse, subbasal, impunctate areas ; disc with coarse, circular, annulate or grooved punctures, separated by more or less one diameter and bearing minute, inconspicuous setae ; a longitudinal median impunctate area usually present ; punctures more closely arranged along extreme anterior margin than elsewhere ; intervals finely, but quite strongly shagreened. Scutellum transverse (5 : 7) ; a single row of coarse punctures present near each lateral margin ; punctures bearing minute, inconspicuous setae ; intervals finely shagreened. *Elytra* with punctures separated by about one diameter or slightly more except along sutural margins where separation is often by much more than one diameter ; punctures bearing setae very slightly more conspicuous than those of pronotum ; intervals finely shagreened except for humeral calli which are smooth ; lateral borders set with a few outstanding setae near shoulders, setae elsewhere on lateral and apical borders minute, inconspicuous. Pygidium slightly transverse ; feebly convex ; surface set with sparsely arranged, annulate punctures, somewhat more closely set basilaterally, bearing minute, outstanding setae ; intervals finely and faintly shagreened, broadly longitudinally rugulose in some examples. Metasternum, episterna and hind coxae annulate-punctate ; punctures on coxae separated by about their own diameter or more and bearing short, fine, subrecumbent setae ; intervals finely shagreened ; intervals of metasternum and episterna more variable in size, finely shagreened ; punctures bearing short setae posterolaterally, much longer bristles anteriorly. Abdominal segments very sparsely setoso-punctate medially, more closely punctured toward lateral margins ; punctures each with a trace of a tubercle on their anterior border, setae in punctures a little longer and finer than those of elytra, but not as long as setae on hind coxae ; intervals finely shagreened along lateral margins, almost smooth medially. *Legs* with anterior tibiae strongly tridentate ; basal hind tarsal segment slightly more than half as long as second (6 : 11) ; upper ramus of all tarsal claws much finer and about half as long as lower.

Genitalia (Text-figs. 236 and 237).

FEMALE. Wingless ; more rounded in outline than the *male* ; with much shorter lamellae to the antennal club, shorter hind tarsi and the upper ramus of all tarsal claws is at least as long as the lower.

Type locality : S. Africa (coll. Ecklon) (Univ. Halle).

Other material examined from : Cape Province : Mossel Bay ; Cape ; E. London (S.A.M.) ; Stutterheim (S.A.M.) ; " Pr. b. sp." (Krebs) (Z.M.B.).

Péringuey gives Seymour and Grahamstown in Cape Province as localities for this species. (As *A. humilis.*)

Total material seen : 10 examples.

The Burmeister collection in the Martin Luther University at Halle contains a single *female* over the name *S. corrosa.* It agrees with the description given by Burmeister and there is no reason why it should not be regarded as the holotype of *S. corrosa.*

Péringuey found himself unable to interpret the Burmeister description and in fact redescribed *S. corrosa* under the name *Atys humilis* Pér. Andreae, writing in 1933, makes this clear, stating at the same time that he had been able to examine the Burmeister material of *S. corrosa* and so had been able to compare it with the Péringuey series of *A. humilis*. Andreae also noticed that Péringuey had broadened the scope of Brenske's *Schizonycha ovatula* to include *S. corrosa* Burm.

S. minima Pér.

Schizonycha minima Péringuey, 1904, p. 218.

Length 9 mm. Breadth 4·25 mm.

MALE

Derm very dark red-brown, shining. *Head* with labral emargination slightly acute; anterior clypeal face vertically plane, median gap in its row of setiferous punctures moderate, bridged by non-setiferous punctures; anterior edge of clypeus truncate medially; clypeal carina strongly arcuate, angled medially; frontoclypeal suture clearly visible; clypeal punctures elongate; frontal punctures transverse, each containing an inverted U-shaped groove. *Pronotum* with anterior border evenly emarginate; anterior and posterior angles obtuse, the former only slightly so; hind margin with a trace of a raised posterior border in front of scutellum; lateral borders set with coarse setae usually shorter than basal anterior tarsal segment; surface with two very narrow, transverse, subbasal impunctate areas; disc very coarsely annulate-punctate, punctures for the most part separated by much less than their own diameter, each bearing a conspicuous, squamiform seta; intervals smooth except for a few scattered, minute punctures. Scutellum with a few coarse punctures, each bearing a white, squamiform seta. *Elytra* deeply and closely punctured, punctures separated by less than their own diameter, bearing setae similar to those in pronotal punctures; intervals almost smooth; lateral borders with stiff, outstanding setae near shoulders, a few outstanding setae present toward apical borders, but very widely separated. Metasternum, episterna and hind coxae setoso-punctate, setae long and stiff on anterior parts of metasternum, squamiform, but longer than those of upper surfaces posterolaterally; episterna and hind coxae with long, squamiform setae, interspersed with a few non-squamiform bristles. Abdominal segments annulate-punctate, more closely so laterally, punctures bearing elongate, squamiform setae similar to those of hind coxae; median areas of abdominal segments with a few squamiform setae and each with a transverse row of non-squamiform bristles. *Legs* with anterior tibiae strongly tridentate; basal hind tarsal segment slightly shorter than second; lower ramus of tarsal claws more than half as long as upper and closely applied to it.

Genitalia (Text-fig. 238) (after Péringuey).

FEMALE. Unknown.

Type locality: Delagoa Bay (S.A.M.).

The *male* type specimen is the sole example of this unusual species known to me.

S. affinis Boh.

Schizonycha affinis Boheman, 1857, p. 103.
Schizonycha furva Péringuey, 1904, p. 242 (***syn. nov.***).
Schizonycha natalica Moser, 1917, p. 253 (***syn. nov.***).

Length 10–12·5 mm. Breadth 5·5–6·5 mm.

MALE

Derm light to dark testaceous with head and pronotum usually darker. *Head* with labral emargination weakly acute ; anterior clypeal face reflexed, feebly convex vertically, median gap in its row of setiferous punctures usually bridged by non-setiferous punctures ; clypeal carina usually strongly arcuate ; frontoclypeal suture clearly marked ; vertex without a transverse carina and not sharply angled ; clypeal punctures slightly elongate ; frontal punctures obliquely transverse. *Pronotum* with anterior border strongly sinuate laterally, slightly forwardly arcuate medially ; posterior angles briefly rounded ; hind margin without a raised posterior border in front of scutellum ; lateral borders feebly crenulate, notches widely separated, setae almost as long as basal anterior tarsal segment ; surface with transverse, subbasal impunctate areas usually very narrowly marked ; a longitudinal median impunctate area usually present also ; discal punctures containing an inverted U-shaped groove, usually arranged in groups, separation often by less than one diameter, punctures bearing minute, inconspicuous setae ; intervals smooth. Scutellum transverse (4 : 5) ; punctate laterally ; punctures bearing minute setae ; intervals smooth. *Elytra* with punctures separated by more or less one diameter, bearing setae as on pronotum ; intervals smooth ; lateral borders with short outstanding setae from bases to about level of apical border of fourth abdominal segment. Pygidium transverse ; variably annulate-punctate ; intervals sometimes more, sometimes less than one diameter, smooth ; punctures bearing small setae similar to those of elytra. Metasternum, episterna and hind coxae with long, narrow, squamiform setae posteriorly and posterolaterally ; longer, non-squamiform setae present along anterior margins of episterna and metasternum ; intervals smooth. Abdominal segments more closely punctate laterally than toward midline ; setae in punctures non-squamiform medially, slightly squamiform laterally, especially anterolaterally ; intervals faintly shagreened along extreme lateral margins, smooth elsewhere. *Legs* with anterior tibiae tridentate, basal tooth very blunt as a rule ; basal hind tarsal segment a little more than half as long as second ; tarsal claws with upper ramus about half as broad as and somewhat shorter than lower.

Genitalia (Text-figs. 239 and 240).

FEMALE. Very similar to the *male*, but the antennal club has shorter lamellae.

Type locality : " In regione fluvii Gariepis " (N.H.R.M.).

Other material examined from : Natal : Indaleni ; Durban ; Weenen ; Pietermaritzburg ; Port Natal (B.M. (N.H.) and N.H.R.M.) ; " Natal " (Unlocalized, B.M. (N.H.) and B.S.S.) ; Pinetown (Holotype of *S. natalica* Moser, Z.M.B.) ; Eshowe, Zululand. " ? Cape Colony " (Holotype of *S. furva* Pér., S.A.M.).

Total material seen : 21 examples.

Through the kindness of Prof. Malaise, I have been able to examine the seven specimens conserved in the Naturhistoriska Riksmuseum, Stockholm, over the name *S. affinis* Boh. As their data shows, at least six, if not all of these specimens could have been seen by Boheman when he described the species. Two of the specimens bear white "Type" labels, thought to have been added by Boheman himself, although most probably at a later date and not at the time when he described the species. An account of my findings in respect of these specimens and the other five is given below:

Specimen (1). Data: "Caffraria, J. Wahlb. Type ♀" and a red label with the printed word "TYPUS". This specimen agrees reasonably well with Boheman's description.

Specimen (2). Data: As for (1), but with no sex indicated, without a "Type" label and with a red "ALLOTYPUS" label. This specimen is a *male* and has had the genitalia dissected out and mounted by Péringuey. It differs on several counts from the description of *S. affinis* given by Boheman, but is obviously a specimen upon which Péringuey based his interpretation of *S. affinis* (see p. 103).

Specimen (3). Data: As for (2), but without an "ALLOTYPUS" label. This specimen is a *female* example of *S. languens* Pér. (p. 101). It does not agree with Boheman's description of *S. affinis.*

Specimen (4). Data: As for (3). This is a *female* example of the species interpreted by Péringuey as *S. affinis.*

Specimen (5). Data: As for (3). This specimen does not agree with the description of *S. affinis.* It is a *male* example of *S. inscita* (Pér.) (p. 192).

Specimen (6). Data: As for (1), but without a red "TYPUS" label. This specimen agrees with Boheman's description and is conspecific with specimen (1).

Specimen (7). Data: "Pt. Nat. Dohrn." This is another *female* example, conspecific with specimens (1) and (6).

Specimens (1), (6) and (7) agree with Boheman's description. The "Port Natal" specimen does not agree in locality with the distribution given after the specific diagnosis. "Caffraria" on the other hand is sufficiently broad a term to include the upper reaches of the Orange River, visited by Wahlberg on his journeys.

As no published citation of a holotype exists, the two examples, (1) and (6), may be considered as equal syntypes of Boheman's species. They are the only specimens in the Boheman collection to which the name *S. affinis* may properly be applied. This being so, I hereby select one of them, specimen (1), as the lectotype of *Schizonycha affinis* Boheman.

S. fimbriata Brske.

Schizonycha fimbriata Brenske, 1898, p. 377.
Schizonycha vaalensis Péringuey, 1904, p. 231 (***syn. nov.***).

Length 14–15 mm. Breadth 7–8 mm.

MALE

Colour castaneous; shining. *Head* with labral emargination acute; anterior clypeal face vertically plane, with a median gap in its row of setiferous punctures;

anterior edge of clypeus emarginate medially; clypeal carina strongly arcuate, sometimes angled medially; no trace of a transverse carina present on vertex; frons slightly longer in midline than clypeus; punctures of clypeus elongate; frontal punctures obliquely transverse, asperose. *Pronotum* with anterior border sinuate laterally, forwardly arcuate medially (as in Text-fig. 31); anterior and posterior angles obtuse; posterior margin with an ill-defined raised hind border in front of scutellum; disc annulate-punctate, punctures irregularly spaced, usually more closely set anteriorly, each with a minute, pale yellowish-white seta; transverse, subbasal inpunctate areas usually present, although not always clearly defined; intervals between coarse punctures finely, often extremely faintly shagreened; lateral borders with outstanding setae not quite as long as basal anterior tarsal segment. Scutellum shallowly punctate laterally; intervals finely shagreened. *Elytra* with punctures separated by slightly less than their own diameter in many instances, bearing setae similar to those on pronotum; intervals smooth, or almost so; lateral borders with outstanding setae from bases almost to apical borders, long and conspicuous near shoulders, shorter and less conspicuous for apical three fourths. Pygidium irregularly annulate-punctate, punctures bearing setae similar to, but slightly finer than those of elytral punctures; intervals slightly roughened as a rule. Metasternum, episterna and hind coxae with annulate punctures bearing long, fine, pale yellow setae, those on anterior parts of metasternum longer than those elsewhere. Abdominal segments more closely punctured laterally than on disc, punctures bearing fine setae of varying lengths, the shorter ones similar to the setae of the elytra, the longer setae usually disposed along the lateral margins of the segments, but sometimes, particularly on the penultimate segment, there is also a transverse row of longer bristles continuing right across the segment; intervals with traces of shagreening along lateral margins, almost smooth except for a faintly wrinkled effect medially. *Legs* with anterior tibiae strongly tridentate; basal hind tarsal segment about four fifths as long as second; tarsal claws with upper ramus slightly shorter than lower on anterior legs, slightly longer than lower ramus on middle and hind legs (Text-fig. 12).

Genitalia (Text-fig. 241).

FEMALE. Very similar to the *male*, but the antennae have shorter lamellae making up the club; the pygidium is generally less transverse and more convex.

Type locality: Transvaal (Z.M.B.).

Other material examined from: Cape Province: Unlocalized (Holotype of *S. vaalensis* Pér. (S.A.M.). Natal: New Hanover; unlocalized (B.S.S.). Transvaal: Potchefstroom (F.); unlocalized (Nevinson coll.). S. Africa: Unlocalized (Pascoe coll.).

Total material seen: 10 examples.

Péringuey records the following localities for this species: Cape Province: Kimberley; Vaal River; Barkly West.

Péringuey remarked that he had been able to compare a typical example of *S. africana* Klug (*nec* Cast.) with his species. He stated that the two were almost identical. I have seen the material of *S. africana* Klug (= *S. salaama* Brske.) in the Zoologisches Museum, Berlin, and find it sufficiently different from *S. fimbriata*

Brenske to appear in quite a different place in the key to species given at the beginning of this paper.

Péringuey also stated that he believed *S. fimbriata* (which of course he referred to as *S. vaalensis*) to have a restricted distribution in the neighbourhood of the Vaal River. This observation would seem to have been contradicted by further collecting. It is unlikely that any confusion exists as to the identity of this species, at least as far as the *males* are concerned for, as Péringuey recorded, the genitalia (Text-fig. 241), are very peculiar in shape.

S. russula Boh.

Schizonycha russula Boheman, 1857, p. 100.
Schizonycha russula Boh., Péringuey, 1904, p. 239.
Schizonycha howickiana Péringuey, 1908, p. 680 (***syn. nov.***).

Length 9–12 mm. Breadth 5–6·5 mm.

MALE

Colour variable from pale testaceous to dark castaneous. *Head* with labral emargination almost rightangled; anterior clypeal face reflexed, vertically convex, with a wide median gap in its row of setiferous punctures; anterior edge of clypeus slightly emarginate medially; clypeal carina arcuate; frontoclypeal suture visible, joining clypeal carina near lateral borders; vertex without a transverse carina, moderately sharply angled; clypeal punctures slightly elongate, closely set, often separated by less than one transverse diameter, their internal borders only being sharply formed; frontal punctures more or less circular, their anterior borders more sharply formed than any others, separation by much less than one diameter; both clypeal and frontal punctures bearing minute, white setae. *Pronotum* with anterior border slightly sinuate laterally, but with anterior angles directed forward; posterior angles obtuse; posterior margin with a raised hind border in front of scutellum; lateral borders with outstanding setae longer than basal anterior tarsal segment; surface without transverse, subbasal, impunctate areas; punctures of disc more or less circular, annulate or containing an inverted U-shaped groove, separated by much less than one diameter as a rule, usually more widely separated toward lateral and hind borders; punctures bearing white, narrowly squamiform setae almost as long as the diameter of a puncture; intervals finely and usually rather faintly shagreened. Scutellum transverse (*c.* 1 : 2); annulate-punctate; punctures smaller than those of pronotum, often confined to lateral margins, bearing minute setae about as long as the diameter of a puncture; intervals finely shagreened. *Elytra* with punctures often separated by less than one diameter on disc, usually by more than one diameter toward apices, each bearing a small, white, slightly squamiform seta slightly shorter than the maximum diameter of a puncture; intervals almost or quite smooth; lateral borders with long, outstanding setae from bases to level of first or second abdominal segment, setae behind this point much smaller, scarcely discernible near apices. Pygidium slightly transverse (*c.* 95 : 120); shallowly convex; often longitudinally wrinkled; shallowly and sparsely annulate-punctate, punctures usually separated by more than one diameter and bearing minute, white setae often no longer than the diameter of the ring within the puncture; intervals finely shagreened. Metasternum, episterna and hind coxae with fine, yellowish-white setae in punctures; intervals finely and faintly shagreened; metasternal disc with a more or less clearly defined impunctate area on each side of middle. Abdominal segments almost impunctate across middle; punctures toward and along lateral margins separated by from one to about two diameters, annulate, often weakly asperose, bearing appressed setae varying in length by from one to about three puncture diameters; intervals variably sculptured, usually almost or quite smooth across middle, finely and more or less clearly shagreened toward lateral borders. *Legs* with anterior tibiae tridentate; basal hind tarsal segment three fourths as long as second; tarsal claws with upper ramus shorter and finer than lower.

Genitalia (Text-figs. 244 and 245).

FEMALE. Differs from the *male* in having the wings much reduced, being more founded in outline and having negligible humeral calli on the elytra. Also the lamellae of the antennal club are shorter, the basal hind tarsal segment is as long as the one following, the tarsal claws have the upper ramus longer than the lower and somewhat divergent from it and the pygidium is usually more transverse (*c.* 9 : 13).

Type locality: "Prope fluvium Limpopo" (N.H.R.M.).

Other material examined from: Transvaal: Brakpan; Nigel; Johannesburg (F. and B.M. (N.H.)); Pretoria (F. and B.M. (N.H.)); Bethal; Heidelburg; Vereeniging. Natal: Howick (Holotype of *S. howickiana* Pér. (S.A.M.)). Cape Province: Port Elizabeth (S.A.M.).

Total material seen: 18 examples.

I have seen the two examples named *S. russula* in the Boheman collection. They are both of the same species, agree with the original description given by Boheman and one of them, a *male*, has had its genitalia dissected out and mounted and is obviously the basis of Péringuey's interpretation of the species. The other example is a *female* and bears the data "Caffraria, J. Wahlb. Type, ♀ TYPUS".

The holotype of *S. howickiana* Pér., kindly made available to me by the authorities of the South African Museum, is a specimen of *S. russula*. Its aedeagus is slightly lighter in construction than is usual in *S. russula*, but that is all.

S. natalensis Brske.

Schizonycha natalensis Brenske, 1898, p. 352.
Schizonycha natalensis Brske., Péringuey, 1904, p. 238.

Length 11·5–14 mm. Breadth 6·5–7·5 mm.

MALE

This species is closely related to the foregoing, differing as indicated in the key to species and in the following respects. The colour is usually dark castaneous to piceous. The *males* of *S. natalensis* sometimes have reduced, non-functional wings as well as the *females* and the humeral calli of the elytra may, at the same time be less well-marked. The labral emargination is acute. The *pronotum* (Text-fig. 34) is usually less closely punctured than is the case with *S. russula*. The lateral borders of the *elytra* usually have stiff, outstanding setae between the bases and the level of the middle of the metasternum only. The pygidium is more transverse (*c.* 10 : 15). The setae in the punctures on the posterolateral parts of the metasternum, on the episterna and on the hind coxae are short, often not more than twice as long as the diameter of a puncture, and appressed.

Genitalia (Text-figs. 242 and 243).

FEMALE. Differs from the *male* in the same way as the *female* of *S. russula* differs from the *male* of that species.

Type locality : Natal (no exact locality) (Z.M.B.).

Other material examined from : Natal : Durban ; Malvern ; Kloof ; Port Natal ; Southbroom ; Intentiveni ; unlocalized (F. and B.M. (N.H.)).

Total material seen : 21 examples.

S. ovatula Brenske

Schizonycha ovatula Brenske, 1898, p. 360.
Atys ovatula Péringuey (*nec* Brenske), 1904, p. 255 (pars ♀).
Schizonycha immixta Péringuey, 1904, p. 230.
Atys immixta (Pér.), Andreae, 1933, p. 106.
Atys ovatula (Brske.), Andreae, 1933, pp. 105, 106.

Length 11·5–13·5 mm. Breadth 7–8 mm.

MALE

Colour usually pale testaceous with head and pronotum slightly darker. *Head* with labral emargination almost rightangled ; anterior clypeal face feebly convex vertically, median gap in its row of setiferous punctures broad ; clypeal carina arcuate ; frontoclypeal suture well-marked ; vertex not sharply angled, without a transverse carina ; frons parallel-sided from vertex to frontoclypeal suture ; clypeal punctures slightly elongate ; frontal punctures discrete, annulate. *Pronotum* with anterior border slightly sinuate laterally ; posterior margin with a raised hind border in front of scutellum ; lateral borders shallowly crenulate, briefly sinuate shortly before obtuse posterior angles, set with setae shorter than basal anterior tarsal segment ; surface without transverse, subbasal, impunctate areas ; discal punctures annulate, separated by from one half to one and one half diameters, each bearing a minute, inconspicuous seta ; intervals smooth. Scutellum transverse (*c.* 3 : 4) ; punctate laterally, occasionally with a few median punctures present as well ; intervals usually very faintly shagreened. *Elytra* with punctures separated by about their own diameter, bearing minute setae ; intervals usually almost smooth ; lateral borders with outstanding, yellow setae near shoulders, setae much shorter and less conspicuous along posterior half of each lateral border. Pygidium transverse, somewhat more convex in lower than in upper half ; very variably annulate-punctate, punctures much more closely set in upper half, bearing minute setae; intervals frequently rugulose. Metasternum, episterna and hind coxae densely clothed with long, yellow hairs; punctures on anterior half of metasternum usually separated by less than their own diameter, punctures a little less closely set posteriorly; intervals smooth. Abdominal segments sparsely punctured, separation considerably greater than the diameter of a puncture, especially toward midline; punctures with anteromedian borders slightly tuberculate, bearing small, non-squamiform setae; intervals smooth medially, faintly shagreened toward lateral borders. *Legs* with anterior tibiae usually strongly tridentate; basal hind tarsal segment about five eighths as long as second; lower ramus of middle and hind tarsal claws finer than upper and a little more than half as long; lower ramus of anterior tarsal claws much broader and longer than upper.

Genitalia (Text-figs. 246 and 247).

FEMALE. Differs from the *male* in that it is a more rounded, wingless form with little or no evidence of humeral calli on the elytra and with a greatly shortened metasternum. The antennae have very short lamellae making up the club, the tarsi are relatively shorter and all the claws have the upper ramus longer than the lower. The setae of the metasternum, episterna and hind coxae are short and more or less appressed.

Type locality: Port Elizabeth, Cape Province (Z.M.B.).

Other material examined from: Cape Prov.: Port Elizabeth; East London; Kingwilliamstown; Pirie Bush; Grahamstown; Salem; " Cap. b. Spei " (B.M. (N.H.) and B.S.S.); " Pr. b. Sp." (Krebs) (Z.M.B.). Natal: Unlocalized.

Total material seen: 36 examples.

Péringuey records in addition Transkei, Cape Province, as a locality for *S. immixta*, the type locality of which is Grahamstown.

Brenske knew only the *female* of this species. Péringuey, in revising *Schizonycha* broadened the scope of Brenske's species to include the *female* of *S. corrosa* Burm. (p. 203) and described the *male* of *S. ovatula* as a new species, *S. immixta*. Both these errors were noticed and corrected by Andreae in his revision of the genus *Atys* Reiche.

S. fraudigera Pér.

Schizonycha fraudigera Péringuey, 1904, p. 231.
Schizonycha egens Péringuey, 1904, p. 235 (***syn. nov.***).

Length 10·5–11 mm. Breadth 5–5·5 mm.

MALE

Colour variable from pale testaceous to castaneous. *Head* with labral emargination approximately rightangled; anterior clypeal face not or very slightly convex vertically, a broad median gap present in its row of setiferous punctures; anterior edge of clypeus broadly truncate or slightly emarginate medially; clypeal carina arcuate medially, overlying frontoclypeal suture laterally; vertex without a transverse carina, not sharply angled; frons parallel-sided, slightly longer in midline than clypeus ; clypeal punctures elongate ; frontal punctures closely set, irregular in outline. *Pronotum* with anterior border sinuate laterally ; anterior and posterior angles obtuse ; hind margin with a raised posterior border in front of scutellum ; lateral borders feebly crenulate, set with setae scarcely more than half as long as basal anterior tarsal segment ; surface with transverse impunctate subbasal areas indistinctly marked as a rule ; disc more or less evenly annulate-punctate, punctures separated by less than their own diameter as a rule, each bearing a minute, narrowly squamiform seta ; intervals smooth except for microscopic punctures. Scutellum slightly elongate ; punctured laterally, each puncture bearing a seta similar to those of pronotal punctures ; intervals finely shagreened. *Elytra* together about one and a half times as long as broad ; punctures of disc and margins separated by about their own diameter, each bearing a small seta similar to those of pronotum ; intervals smooth ; outstanding setae along lateral borders confined to near shoulders. Pygidium strongly transverse ; closely and deeply annulate-punctate ; punctures variably separated, bearing setae similar to those of elytra ; intervals usually finely shagreened, especially toward upper margin. Metasternum, episterna and hind coxae with short, sparsely set, recumbent, slightly squamiform setae posteriorly and laterally, longer, more or less outstanding bristles present in punctures on anterior parts of metasternum ; intervals between punctures smooth or extremely faintly shagreened. Abdominal segments more or less regularly scabroso-punctate, more closely so toward lateral margins ; punctures bearing narrowly squamiform setae, distinctly longer than those of elytra ; a few long, non-squamiform setae present also, the longest occurring on the penultimate segment ; intervals smooth except along extreme lateral margins where the surface shows traces of shagreening in some examples. *Legs* with anterior tibiae strongly tridentate ; basal hind tarsal segment little more than half as long as second ; upper ramus of all tarsal claws shorter and much finer than lower.

Genitalia (Text-figs. 248 and 249).

FEMALE. Differs from the *male* in being wingless, more rounded in outline and with a much reduced metasternum ; in having much shorter lamellae making up the antennal club ; in having shorter tarsi with the upper ramus of the claws as broad as the lower and longer and the basal segment of the hind tarsi about as long as the second segment. The elytra of the *female* are together about as long as broad.

Type locality : Potchefstroom, Transvaal (S.A.M.).

Other material examined from : Transvaal : Lydenburg (S.A.M. Holotype of *S. egens*) ; Piet Retief Dist. ; unlocalized (Fry coll.). Swaziland : Mbabane (B.S.S.).

Total material seen : 21 examples.

Having had the opportunity to compare the types of the two species described by Péringuey, I have no doubt as to their synonymy.

S. pauperata Pér.

Schizonycha pauperata Péringuey, 1908, p. 701.

Length 13 mm. Breadth 7 mm.

MALE

Derm castaneous to dark, fusco-castaneous. *Head* with labral emargination weakly acute ; anterior clypeal face vertically plane, with a moderate median gap in its row of setiferous punctures ; anterior edge of clypeus weakly emarginate medially ; clypeal carina strongly arcuate ; frontoclypeal suture clearly visible ; vertex without a transverse carina, briefly rounded ; clypeal punctures elongate, their internal borders sharply formed and slightly raised ; frontal punctures asperose, closely set ; frontal and clypeal punctures bearing short, white, suberect, pointed, narrowly squamiform setae. *Pronotum* with anterior border only slightly sinuate laterally ; anterior and posterior angles obtuse ; posterior margin with a weakly raised hind border in front of scutellum ; lateral borders with stiff, outstanding, curved setae slightly shorter than basal anterior tarsal segment ; surface without transverse, subbasal, impunctate areas ; disc and margins coarsely and closely punctured ; punctures annulate, usually separated by their own diameter or a little less, bearing short, white, suberect, pointedly squamiform setae similar to, or slightly larger than those on head ; intervals smooth. Scutellum transverse (5 : 8) ; annulate-punctate, punctures usually congregated along lateral margins, bearing setae slightly smaller than those of pronotal disc ; intervals finely shagreened. *Elytra* with punctures separated by more or less their own diameter, bearing squamiform setae similar to (sometimes slightly smaller than) those of pronotal disc ; intervals almost smooth, sometimes with traces of shagreening around punctures ; lateral borders with stiff, outstanding setae from bases almost to apices, setae near shoulders about half as long as setae along lateral borders of pronotum, setae becoming progressively shorter toward apical borders. Pygidium transverse ; convex ; rather sparsely annulate-punctate, punctures separated by from one to several diameters on disc, more closely arranged toward basal angles, bearing small, erect, white or yellowish-white setae finer than those of elytra ; intervals finely shagreened. Mestasternum with fine, yellow, suberect setae in punctures on anterior half and sometimes on mediobasal area as well ; setae elsewhere on metasternum shorter, narrowly squamiform, appressed ; metepisterna with long, yellow setae on anterior third, with shorter, squamiform setae posteriorly ; hind coxae with appressed, narrowly squamiform setae in punctures except near junction with trochanters where setae are non-squamiform. Abdominal segments more closely punctured laterally than medially ; punctures on disc bearing a mixture of long and short, non- or scarcely squamiform setae ; punctures along lateral margins bearing narrowly squamiform setae similar to those on elytra ; intervals finely and faintly shagreened. *Legs* with anterior tibiae tridentate ; basal hind tarsal segment about three fourths as long as second ; tarsal claws with upper ramus longer than lower and slightly divergent from it, lower ramus obliquely truncate apically.

Genitalia (Text-figs. 250 and 251).

FEMALE. A little more rounded in outline than *male,* but elytra with humeral calli still clearly visible. Wings vestigial. Metasternum distinctly shorter than in *male.* Antennae with lamellae about three fifths as long as those of *male.* Basal hind tarsal segment about as long as second segment. The *female* shows a tendency for the discs of the pronotum and elytra to be less closely and less regularly punctured than they are in the *male* (cf. S. *compacta*, p. 150), but some examples may be indistinguishable from *males* on these grounds alone.

Type locality : Potchefstroom, Transvaal (S.A.M.).

Other material examined from : Transvaal : Unlocalized (Fry coll.). Cape Province : Aliwal North (F.).

The Aliwal North record rests upon a single *female* example assigned, with some reservations to S. *pauperata* Pér.

Total material seen : 11 examples.

S. rurigena Brske.

Schizonycha rurigena Brenske, 1898, p. 366.
Schizonycha rurigena Brske., Péringuey, 1904, p. 221.

Length 11–12 mm. Breadth 6·5–7 mm.

MALE

This species is very closely related indeed to the foregoing, differing as explained in the key to species and by the genitalia. A further point may be that this species appears likely to be generally lighter in colour than S. *pauperata*.

Genitalia (Text-figs. 252 and 253).

FEMALE. Unknown.

Type locality : Natal (Z.M.B.).

Other material examined from : Natal : A single, unlocalized example from the Zoologisches Museum, Berlin.

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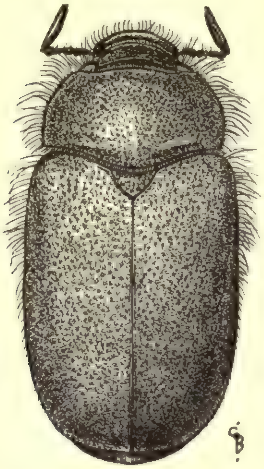
PLATE 1

Fig. 1. *Schizonycha deceptor* sp. n. ♂.
Fig. 2. *Schizonycha piceonigra* sp. n. ♂.
Fig. 3. *Schizonycha jordani* sp. n. ♂.
Fig. 4. *Schizonycha* globa sp. n. ♂.



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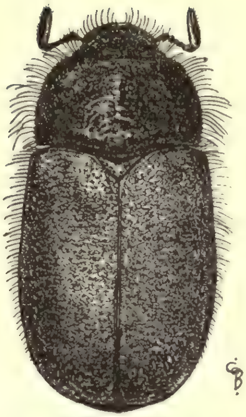

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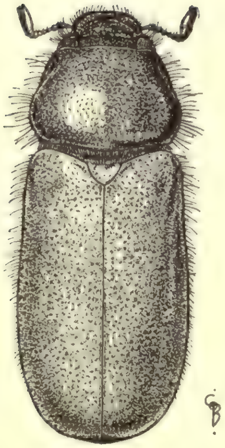

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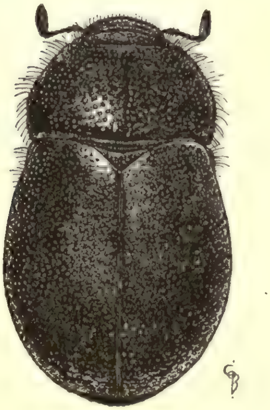

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PLATE 2

FIG. 5. *Schizonycha usambarae* Brske. ♂. E. Elytral epipleuron. H. Hypomeron. HC. Hind coxae. L. Labrum. M. Metasternum. Me. Metepisternum. Mp. Metepimeron. Msp. Mesepimeron. Mst. Mesosternum. MS. Setae arising from base of mentum. Ppy. Propygidium. Pr. Pronotum. Ps. Prosternum. Py. Pygidium. V. Vertex of head. 1–5. Visible abdominal segments.

FIG. 6. *Schizonycha abenaba* sp. n. ♀. Underside of head and prothorax. C. Clypeus with median gap in row of setiferous punctures. M. Mentum with two basal setiferous pores. P. Impressed median setiferous area of prosternum.

FIG. 7. *Schizonycha rotunda* sp. n. ♀. Detail of pronotal punctures.

FIG. 8. *Schizonycha globator* (F.) ♂. Detail of pronotal punctures.

FIG. 9. *Schizonycha profuga* Péringuey ♂. Pronotum to show raised hind border.

FIG. 10. *Schizonycha abrupta* sp. n. ♂. Tarsal claw.

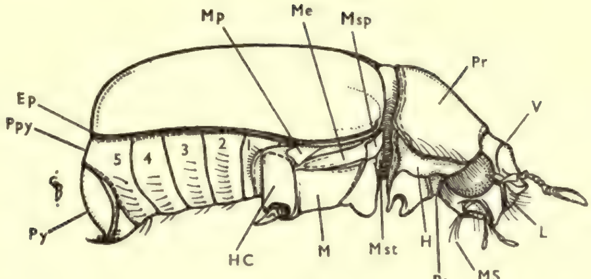
FIG. 11. *Schizonycha livada* n. n. ♂. Tarsal claw.

FIG. 12. *Schizonycha fimbriata* Brenske ♂. Tarsal claw.

FIG. 13. *Schizonycha barda* Burmeister ♀. Tarsal claw.

FIG. 14. *Schizonycha mediastina* Péringuey ♂. Tarsal claw.

FIG. 15. *Schizonycha elegans* Péringuey ♂. Tarsal claw.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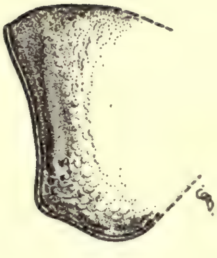

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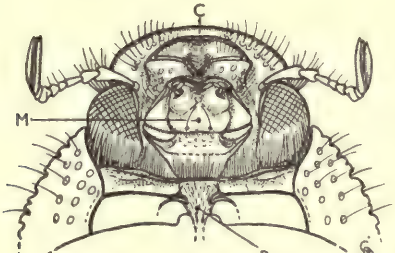

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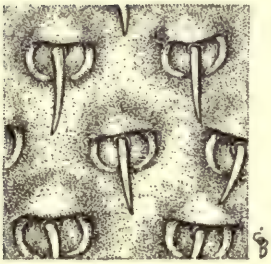

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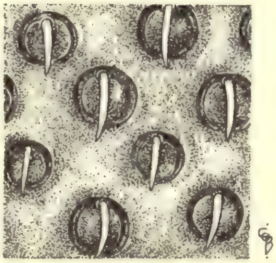

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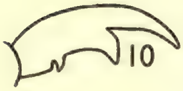

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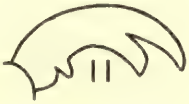

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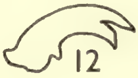

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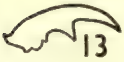

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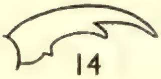

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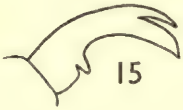

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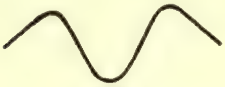
PLATE 3

FIG. 16. *Schizonycha inedita* Péringuey. Labral emargination.
FIG. 17. *Schizonycha languens* Péringuey. Labral emargination.
FIG. 18. *Schizonycha abrupta* sp. n. Labral emargination.
FIG. 19. *Schizonycha puerilis* Péringuey. Labral emargination.
FIG. 20. *Schizonycha barda* Burmeister. Head.
FIG. 21. *Schizonycha perforata* Burmeister. Head.
FIG. 22. *Schizonycha gonaqua* Péringuey. Head.
FIG. 23. *Schizonycha languens* Péringuey. Head.
FIG. 24. *Schizonycha ovampoana* Péringuey. Head.
FIG. 25. *Schizonycha geilenkeuseri* Brenske. Head from in front.
FIG. 26. *Schizonycha fartula* Péringuey. Pygidium.
FIG. 27. *Schizonycha unicolor* (Herbst). Diagrammatic section through elytral margin to show angled epipleuron.
FIG. 28. *Schizonycha dissensa* Péringuey. Diagrammatic section through elytral margin to show parallel epipleuron.
FIG. 29. *Schizonycha ciliata* Burmeister. Plan of elytral apices to show minute spines.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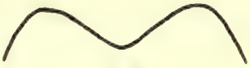
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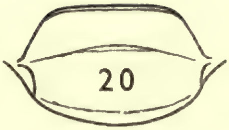
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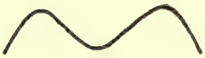
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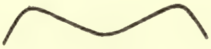
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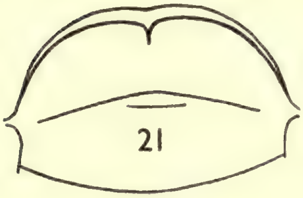
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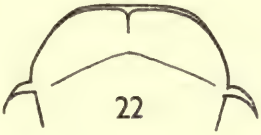
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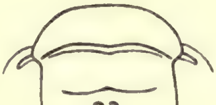
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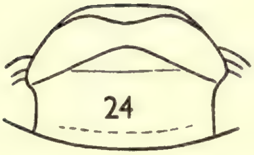
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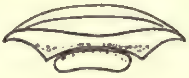
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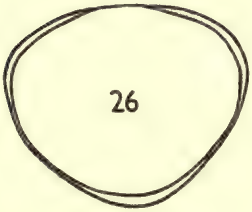
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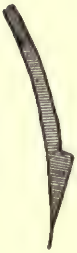
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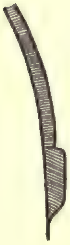
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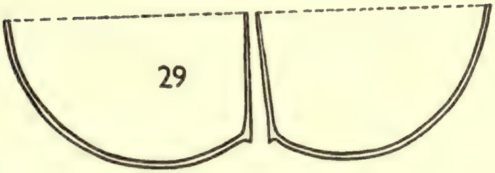
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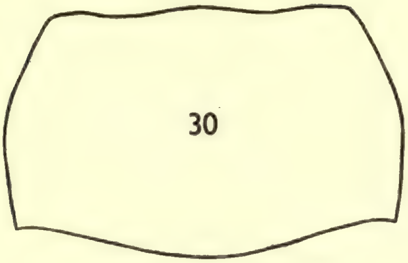
PLATE 4

Fig. 30. *Schizonycha elegans* Péringuey. Pronotum.
Fig. 31. *Schizonycha abscondita* sp. n. Pronotum.
Fig. 32. *Schizonycha increta* Péringuey. Pronotum.
Fig. 33. *Schizonycha corrosa* Burmeister. Pronotum.
Fig. 34. *Schizonycha natalensis* Brenske. Pronotum, lateral.
Fig. 35. *Schizonycha puerilis* Péringuey. Pronotum, lateral.
Fig. 36. *Schizonycha bohemani* n. n. Pronotum, lateral.
Fig. 37. *Schizonycha inscita* (Péringuey). Pronotum.
Fig. 38. *Schizonycha profuga* Péringuey. Pronotum, lateral.
Fig. 39. *Schizonycha scabiosa* Péringuey. Pronotum.
Fig. 40. *Schizonycha continens* Péringuey. Pronotum.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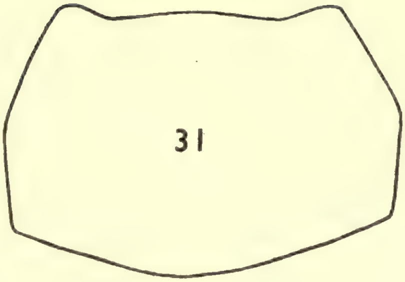
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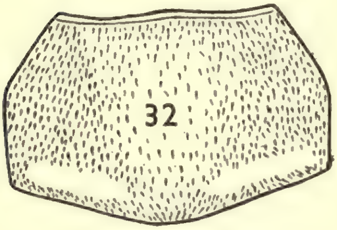
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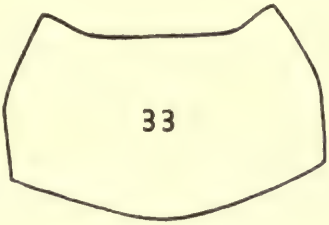
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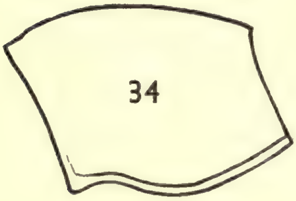
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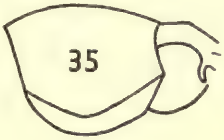
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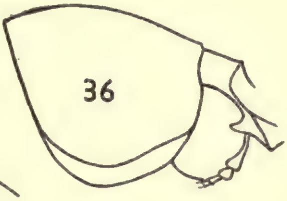
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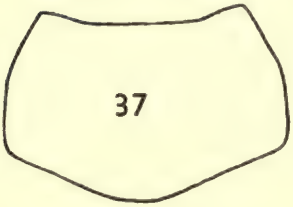
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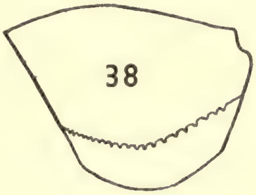
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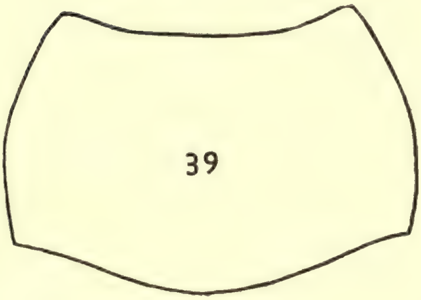
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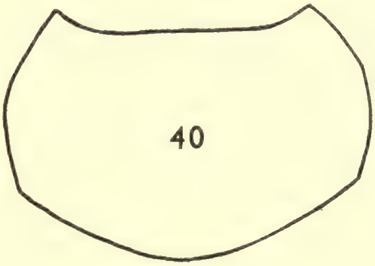
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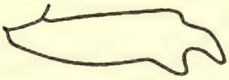
PLATE 5

FIG. 41. *Schizonycha nigricornis* Burmeister. Right anterior tibia.
FIG. 42. *Schizonycha elegans* Péringuey. Right anterior tibia.
FIG. 43. *Schizonycha compacta* sp. n. Lateral view of right elytron.
FIG. 44. *Schizonycha mimocontinens* sp. n. Lateral view of right elytron.
FIG. 45. *Schizonycha parda* Burmeister. Lower face of left hind femur.
FIG. 46. *Schizonycha scabiosa* Péringuey. Lower face of left hind femur.
FIG. 47. *Schizonycha Manicana* Péringuey. Lower face of left hind femur.
FIG. 48. *Schizonycha inverta* (Péringuey) ♂. Apex of hind tibia.
FIG. 49. *Schizonycha inops* Péringuey ♂. Apex of hind tibia.
FIG. 50. *Schizonycha villosa* Brenske ♂. Shorter apical spur of hind tibia.
FIG. 51. *Schizonycha languens* Péringuey ♀. Pygidium in profile.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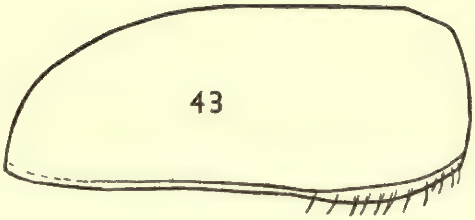
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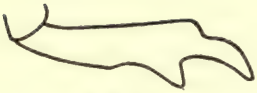
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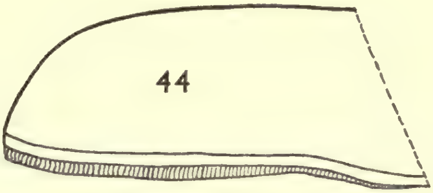
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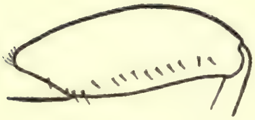
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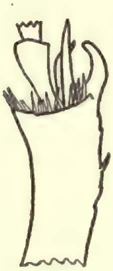
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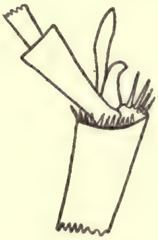
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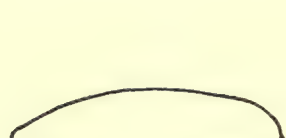
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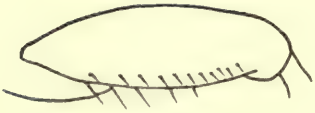
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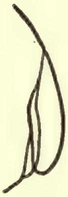
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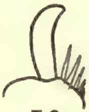
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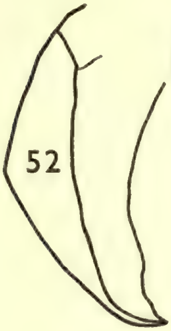
PLATE 6

- Fig. 52. *Schizonycha durbana* Péringuey. Paramere, lateral.
- Fig. 53. *Schizonycha durbana* Péringuey. Parameres.
- Fig. 54. *Schizonycha inedita* Péringuey. Paramere, lateral.
- Fig. 55. *Schizonycha inedita* Péringuey. Parameres.
- Fig. 56. *Schizonycha feirana* Péringuey. Paramere, lateral.
- Fig. 57. *Schizonycha feirana* Péringuey. Parameres.
- Fig. 58. *Schizonycha transvaalica* Péringuey. Paramere, lateral (after Péringuey).
- Fig. 59. *Schizonycha transvaalica* Péringuey. Parameres (after Péringuey).
- Fig. 60. *Schizonycha ambigua* Péringuey. Paramere, lateral.
- Fig. 61. *Schizonycha ambigua* Péringuey. Parameres.
- Fig. 62. *Schizonycha ignava* Péringuey. Parameres (after Péringuey).
- Fig. 63. *Schizonycha languens* Péringuey. Paramere, lateral.
- Fig. 64. *Schizonycha languens* Péringuey. Parameres.
- Fig. 65. *Schizonycha bohemani* n. n. Paramere, lateral.
- Fig. 66. *Schizonycha bohemani* n. n. Parameres.
- Fig. 67. *Schizonycha puerilis* Péringuey. Paramere, lateral.
- Fig. 68. *Schizonycha puerilis* Péringuey. Parameres.
- Fig. 69. *Schizonycha infantilis* Péringuey. Paramere, lateral.
- Fig. 70. *Schizonycha infantilis* Péringuey. Parameres.
- Fig. 71. *Schizonycha disputabilis* Péringuey. Parameres (after Péringuey).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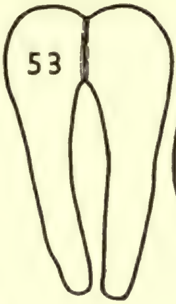
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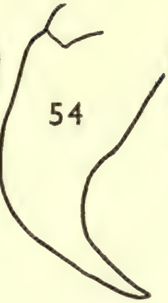
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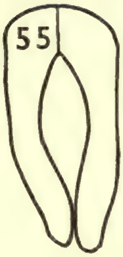
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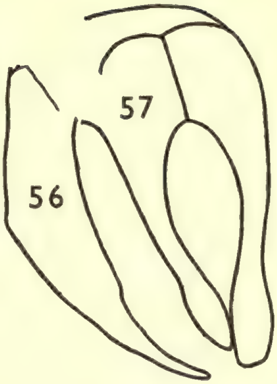
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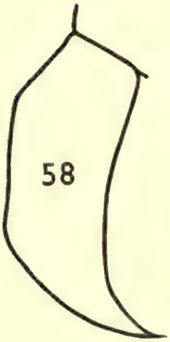
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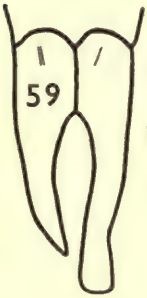
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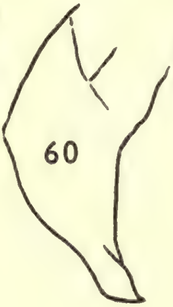
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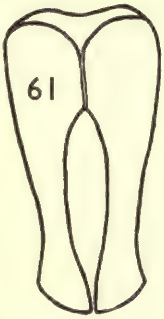
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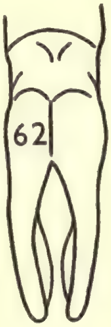
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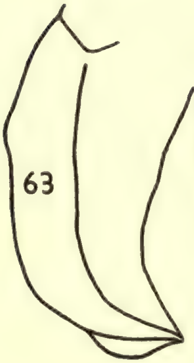
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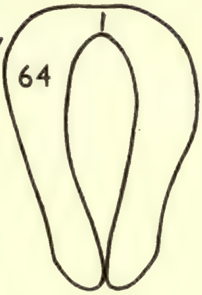
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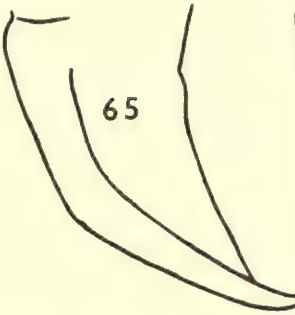
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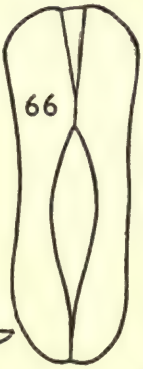
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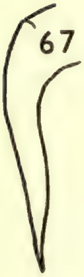
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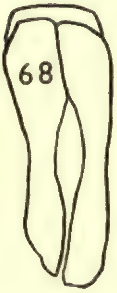
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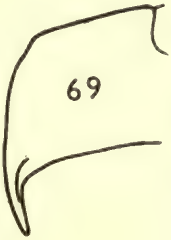
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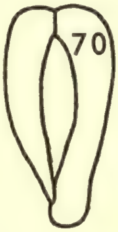
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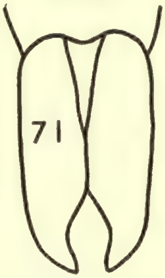
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PLATE 7

Fig. 72. *Schizonycha parilis* Péringuey. Paramere, lateral.
Fig. 73. *Schizonycha parilis* Péringuey. Parameres.
Fig. 74. *Schizonycha divulsa* Péringuey. Paramere, lateral.
Fig. 75. *Schizonycha divulsa* Péringuey. Parameres.
Fig. 76. *Schizonycha squamosetosa* Moser. Paramere, lateral.
Fig. 77. *Schizonycha squamosetosa* Moser. Parameres.
Fig. 78. *Schizonycha inops* Péringuey. Paramere, lateral.
Fig. 79. *Schizonycha inops* Péringuey. Parameres.
Fig. 80. *Schizonycha increta* Péringuey. Parameres (after Péringuey).
Fig. 81. *Schizonycha* sp. *? increta* Pér. Paramere, lateral.
Fig. 82. *Schizonycha* sp. *? increta* Pér. Parameres.
Fig. 83. *Schizonycha gracilis* Brenske. Paramere, lateral.
Fig. 84. *Schizonycha gracilis* Brenske. Parameres.
Fig. 85. *Schizonycha frontalis* Moser. Paramere, lateral.
Fig. 86. *Schizonycha frontalis* Moser.P arameres.
Fig. 87. *Schizonycha peringueyi* Dalla Torre. Parameres (after Péringuey).
Fig. 88. *Schizonycha nigricornis* Burmeister. Paramere, lateral.
Fig. 89. *Schizonycha nigricornis* Burmeister. Parameres.
Fig. 90. *Schizonycha confinis* Péringuey. Parameres (after Péringuey).
Fig. 91. *Schizonycha algoensis* Péringuey. Parameres (after Péringuey).

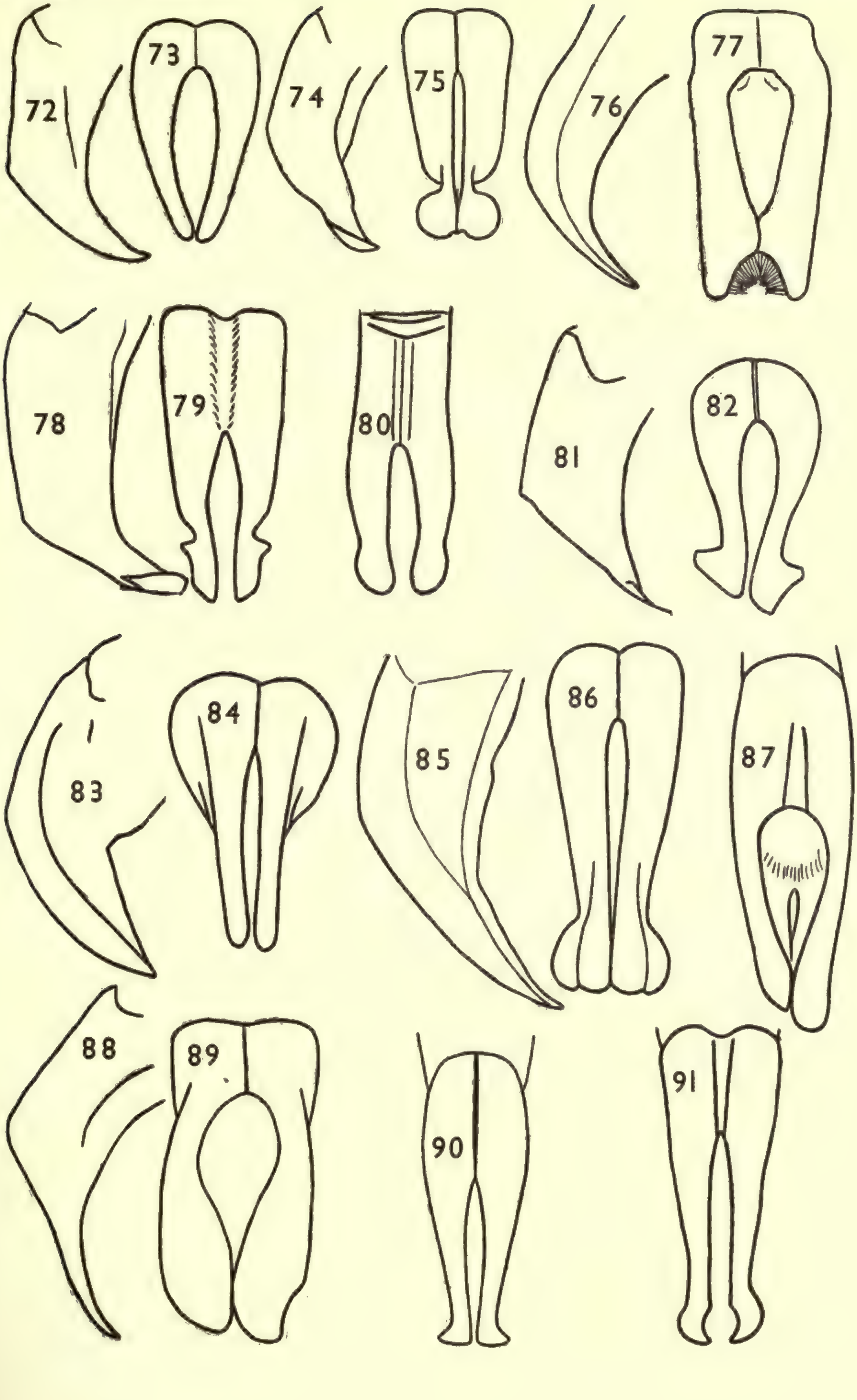

PLATE 8

Fig. 92. *Schizonycha villosa* Brenske. Paramere, lateral.
Fig. 93. *Schizonycha villosa* Brenske. Parameres.
Fig. 94. *Schizonycha lebidis* n. n. Paramere, lateral.
Fig. 95. *Schizonycha lebidis* n. n. Parameres.
Fig. 96. *Schizonycha debilis* Burmeister. Paramere, lateral.
Fig. 97. *Schizonycha debilis* Burmeister. Parameres.
Fig. 98. *Schizonycha rugosa* Brenske. Parameres.
Fig. 99. *Schizonycha elegans* Péringuey. Parameres.
Fig. 100. *Schizonycha fatidica* Péringuey. Paramere, lateral.
Fig. 101. *Schizonycha fatidica* Péringuey. Parameres.
Fig. 102. *Schizonycha noscitata* Péringuey. Parameres (after Péringuey).
Fig. 103. *Schizonycha fallax* (Péringuey). Paramere, lateral.
Fig. 104. *Schizonycha fallax* (Péringuey). Parameres.
Fig. 105. *Schizonycha fartula* Péringuey. Paramere, lateral.
Fig. 106. *Schizonycha fartula* Péringuey. Parameres.
Fig. 107. *Schizonycha dissensa* Péringuey. Paramere, lateral.
Fig. 108. *Schizonycha dissensa* Péringuey. Parameres.
Fig. 109. *Schizonycha unicolor* (Herbst). Paramere, lateral.
Fig. 110. *Schizonycha unicolor* (Herbst). Parameres.
Fig. 111. *Schizonycha hybrida* (Péringuey). Paramere, lateral.
Fig. 112. *Schizonycha hybrida* (Péringuey). Parameres.
Fig. 113. *Schizonycha mediastina* Péringuey. Paramere, lateral.
Fig. 114. *Schizonycha mediastina* Péringuey. Parameres.
Fig. 115. *Schizonycha insuesa* Péringuey. Parameres (after Péringuey).
Fig. 116. *Schizonycha barda* Burmeister. Paramere, lateral.
Fig. 117. *Schizonycha barda* Burmeister. Parameres.

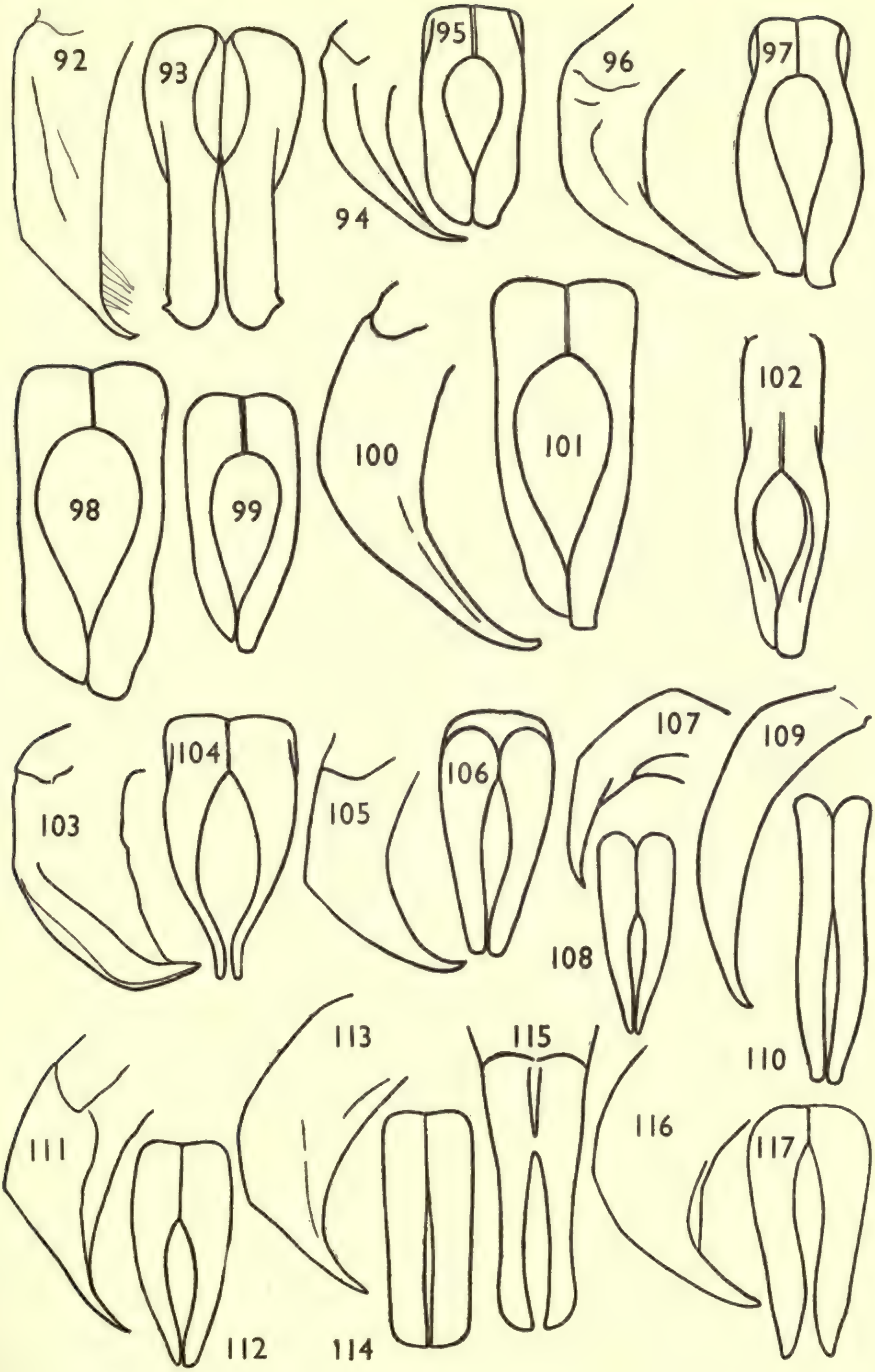

PLATE 9

Fig. 118. *Schizonycha effeta* Péringuey. Paramere, lateral.
Fig. 119. *Schizonycha effeta* Péringuey. Parameres.
Fig. 120. *Schizonycha marginata* sp. n. Paramere, lateral.
Fig. 121. *Schizonycha marginata* sp. n. Parameres.
Fig. 122. *Schizonycha windhoekensis* sp. n. Paramere, lateral.
Fig. 123. *Schizonycha windhoekensis* sp. n. Parameres.
Fig. 124. *Schizonycha gonaquoides* sp. n. Paramere, lateral.
Fig. 125. *Schizonycha gonaquoides* sp. n. Parameres.
Fig. 126. *Schizonycha gonaqua* Péringuey. Paramere, lateral.
Fig. 127. *Schizonycha gonaqua* Péeringuey. Parameres.
Fig. 128. *Schizonycha globator* (Fabricius). Paramere, lateral.
Fig. 129. *Schizonycha globator* (Fabricius). Parameres.
Fig. 130. *Schizonycha jordani* sp. n. Paramere, lateral.
Fig. 131. *Schizonycha jordani* sp. n. Parameres.
Fig. 132. *Schizonycha clypealis* sp. n. Paramere, lateral.
Fig. 133. *Schizonycha clypealis* sp. n. Parameres.
Fig. 134. *Schizonycha compacta* sp. n. Paramere, lateral.
Fig. 135. *Schizonycha compacta* sp. n. Parameres.
Fig. 136. *Schizonycha laticia* n. n. Paramere, lateral.
Fig. 137. *Schizonycha laticia* n. n. Parameres.
Fig. 138. *Schizonycha ciliata* Burmeister. Paramere, lateral.
Fig. 139. *Schizonycha ciliata* Burmeister. Parameres.
Fig. 140. *Schizonycha quaesita* Péringuey. Paramere, lateral.
Fig. 141. *Schizonycha quaesita* Péringuey. Parameres.

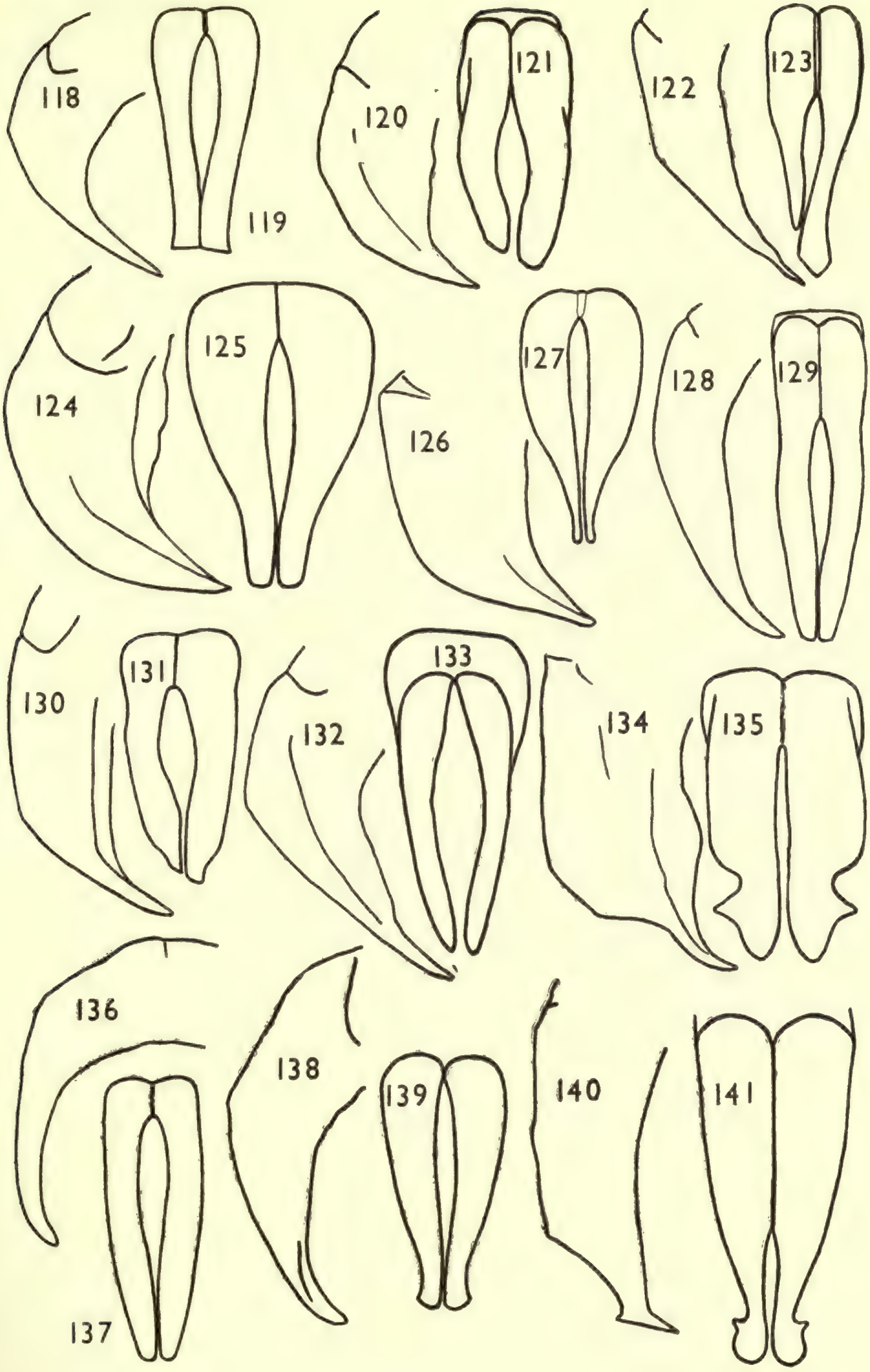

PLATE 10

FIG. 142. *Schizonycha piceonigra* sp. n. Paramere, lateral.
FIG. 143. *Schizonycha piceonigra* sp. n. Parameres.
FIG. 144. *Schizonycha spuria* Péringuey. Paramere, lateral.
FIG. 145. *Schizonycha spuria* Péringuey. Parameres.
FIG. 146. *Schizonycha abenaba* sp. n. Paramere, lateral.
FIG. 147. *Schizonycha abenaba* sp. n. Parameres.
FIG. 148. *Schizonycha matabelana* Péringuey. Paramere, lateral.
FIG. 149. *Schizonycha matabelana* Péringuey. Parameres.
FIG. 150. *Schizonycha livida* Klug. Paramere, lateral.
FIG. 151. *Schizonycha livida* Klug. Parameres.
FIG. 152. *Schizonycha kochi* sp. n. Paramere, lateral.
FIG. 153. *Schizonycha kochi* sp. n. Parameres.
FIG. 154. *Schizonycha usambarae* Brenske. Paramere, lateral.
FIG. 155. *Schizonycha usambarae* Brenske. Parameres.
FIG. 156. *Schizonycha pseudosquamifera* sp. n. Paramere, lateral.
FIG. 157. *Schizonycha pseudosquamifera* sp. n. Parameres.
FIG. 158. *Schizonycha mimocontinens* sp. n. Paramere, lateral.
FIG. 159. *Schizonycha mimocontinens* sp. n. Parameres.
FIG. 160. *Schizonycha neglecta* Boheman. Paramere, lateral.
FIG. 161. *Schizonycha neglecta* Boheman. Parameres.
FIG. 162. *Schizonycha scabiosa* Péringuey. Paramere, lateral.
FIG. 163. *Schizonycha scabiosa* Péringuey. Parameres.

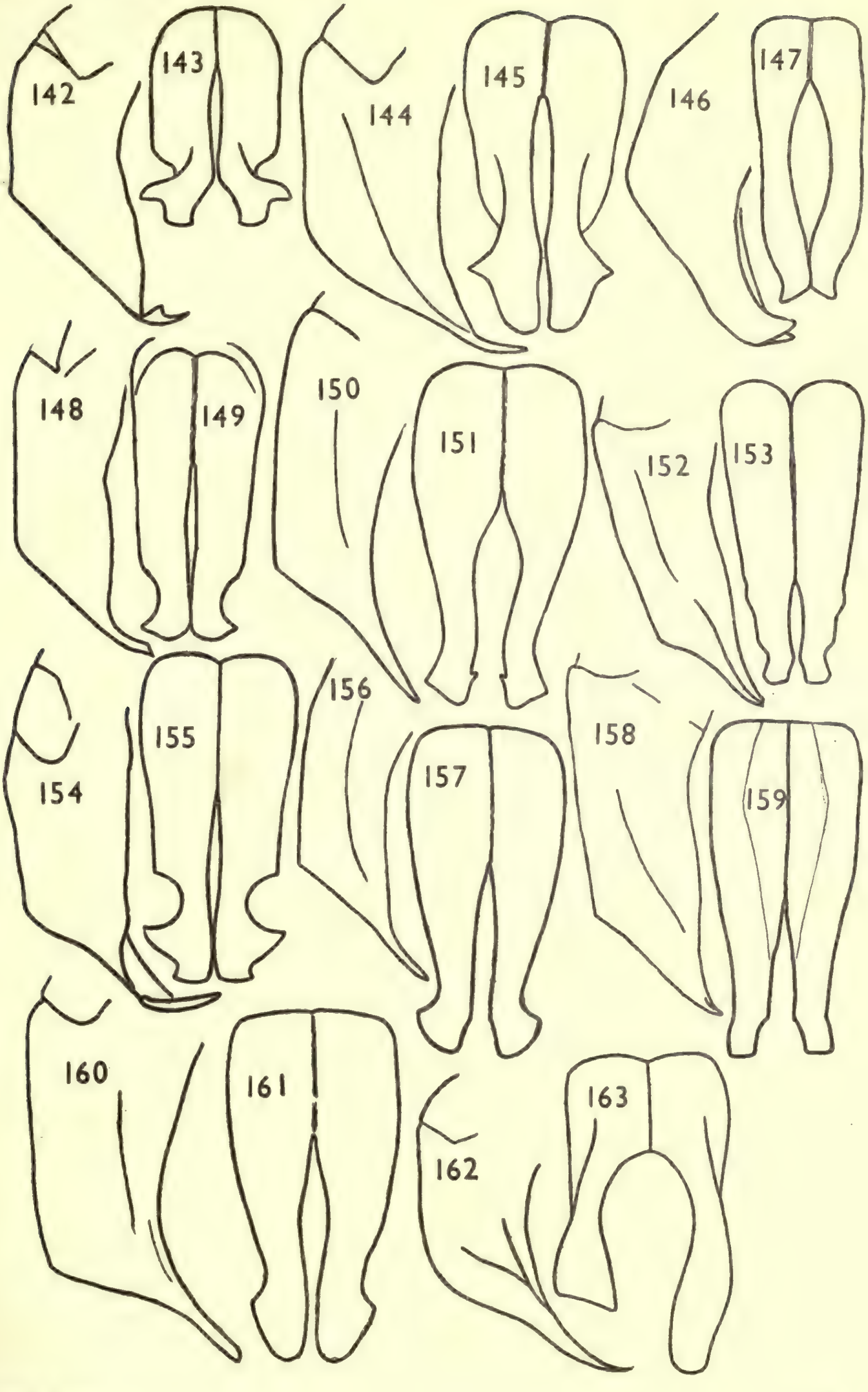

PLATE 11

FIG. 164. *Schizonycha continens* Péringuey. Paramere, lateral.
FIG. 165. *Schizonycha continens* Péringuey. Parameres.
FIG. 166. *Schizonycha livada* n. n. Paramere, lateral.
FIG. 167. *Schizonycha livada* n. n. Parameres.
FIG. 168. *Schizonycha ovampoana* Péringuey. Paramere, lateral.
FIG. 169. *Schizonycha ovampoana* Péringuey. Parameres.
FIG. 170. *Schizonycha citima* Péringuey. Paramere, lateral.
FIG. 171. *Schizonycha citima* Péringuey. Parameres.
FIG. 172. *Schizonycha puncticollis* Boheman. Paramere, lateral.
FIG. 173. *Schizonycha puncticollis* Boheman. Parameres.
FIG. 174. *Schizonycha salisburiana* Péringuey. Paramere, lateral.
FIG. 175. *Schizonycha salisburiana* Péringuey. Parameres.
FIG. 176. *Schizonycha profuga* Péringuey. Paramere, lateral.
FIG. 177. *Schizonycha profuga* Péringuey. Parameres.
FIG. 178. *Schizonycha valida* Boheman. Paramere, lateral.
FIG. 179. *Schizonycha valida* Boheman. Parameres.
FIG. 180. *Schizonycha spectabilis* Péringuey. Paramere, lateral.
FIG. 181. *Schizonycha spectabilis* Péringuey. Parameres.

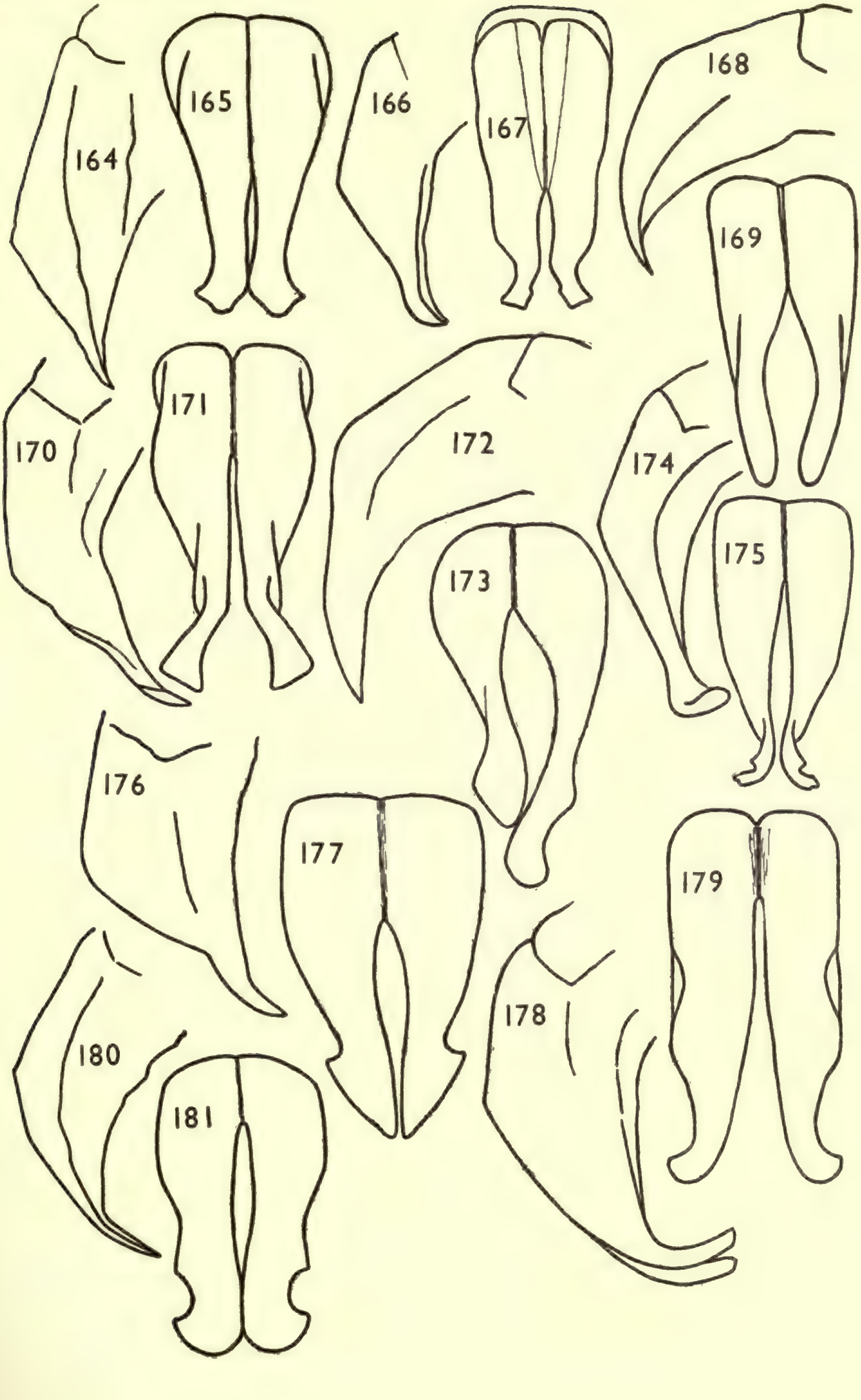

PLATE 12

Fig. 182. *Schizonycha vryburgensis* sp. n. Paramere, lateral.
Fig. 183. *Schizonycha vryburgensis* sp. n. Parameres.
Fig. 184. *Schizonycha rufina* Boheman. Paramere, lateral.
Fig. 185. *Schizonycha rufina* Boheman. Parameres.
Fig. 186. *Schizonycha straminea* (Péringuey). Paramere, lateral.
Fig. 187. *Schizonycha straminea* (Péringuey). Parameres.
Fig. 188. *Schizonycha rhodesiana* Moser. Paramere, lateral.
Fig. 189. *Schizonycha rhodesiana* Moser. Parameres.
Fig. 190. *Schizonycha constrata* Péringuey. Paramere, lateral.
Fig. 191. *Schizonycha constrata* Péringuey. Parameres.
Fig. 192. *Schizonycha manicana* Péringuey. Paramere, lateral.
Fig. 193. *Schizonycha manicana* Péringuey. Parameres.
Fig. 194. *Schizonycha inostralis* sp. n. Paramere, lateral.
Fig. 195. *Schizonycha inostralis* sp. n. Parameres.
Fig. 196. *Schizonycha deceptor* sp. n. Paramere, lateral.
Fig. 197. *Schizonycha deceptor* sp. n. Parameres.
Fig. 198. *Schizonycha inverta* (Péringuey). Paramere, lateral.
Fig. 199. *Schizonycha inverta* (Péringuey). Parameres.
Fig. 200. *Schizonycha minor* sp. n. Paramere, lateral.
Fig. 201. *Schizonycha minor* sp. n. Parameres.
Fig. 202. *Schizonycha abscondita* sp. n. Paramere, lateral.
Fig. 203. *Schizonycha abscondita* sp. n. Parameres.
Fig. 204. *Schizonycha perforata* Burmeister. Paramere, lateral.
Fig. 205. *Schizonycha perforata* Burmeister. Parameres.

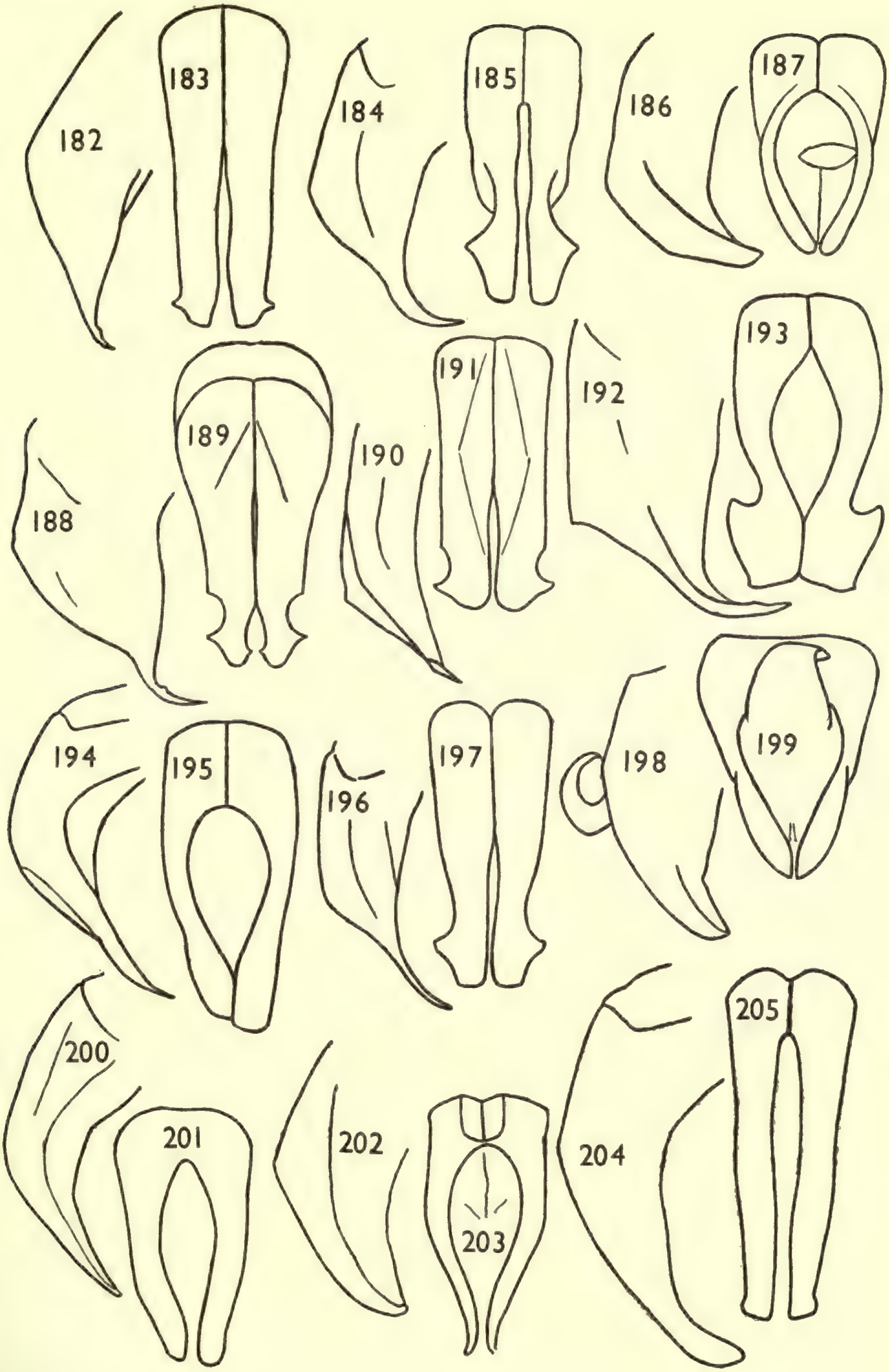

PLATE 13

Fig. 206. *Schizonycha abrupta* sp. n. Paramere, lateral.
Fig. 207. *Schizonycha abrupta* sp. n. Parameres.
Fig. 208. *Schizonycha capensis* Burmeister. Paramere, lateral.
Fig. 209. *Schizonycha capensis* Burmeister. Parameres.
Fig. 210. *Schizonycha boschimana* Péringuey. Paramere, lateral.
Fig. 211. *Schizonycha boschimana* Péringuey. Parameres.
Fig. 212. *Schizonycha geilenkeuseri* Brenske. Paramere, lateral.
Fig. 213. *Schizonycha geilenkeuseri* Brenske. Parameres.
Fig. 214. *Schizonycha meracula* Péringuey. Paramere, lateral.
Fig. 215. *Schizonycha meracula* Péringuey. Parameres.
Fig. 216. *Schizonycha inscita* (Péringuey). Paramere, lateral.
Fig. 217. *Schizonycha inscita* (Péringuey). Parameres.
Fig. 218. *Schizonycha globa* sp. n. Paramere, lateral.
Fig. 219. *Schizonycha globa* sp. n. Parameres.
Fig. 220. *Schizonycha squamifera* Wallengren. Paramere, lateral.
Fig. 221. *Schizonycha squamifera* Wallengren. Parameres.
Fig. 222. *Schizonycha carbonaria* Boheman. Paramere, lateral.
Fig. 223. *Schizonycha carbonaria* Boheman. Parameres.
Fig. 224. *Schizonycha dissimilis* Péringuey. Paramere, lateral.
Fig. 225. *Schizonycha dissimilis* Péringuey. Parameres.
Fig. 226. *Schizonycha saga* Péringuey. Paramere, lateral.
Fig. 227. *Schizonycha saga* Péringuey. Parameres.
Fig. 228. *Schizonycha perplexabilis* Péringuey. Paramere, lateral.
Fig. 229. *Schizonycha perplexabilis* Péringuey. Parameres.

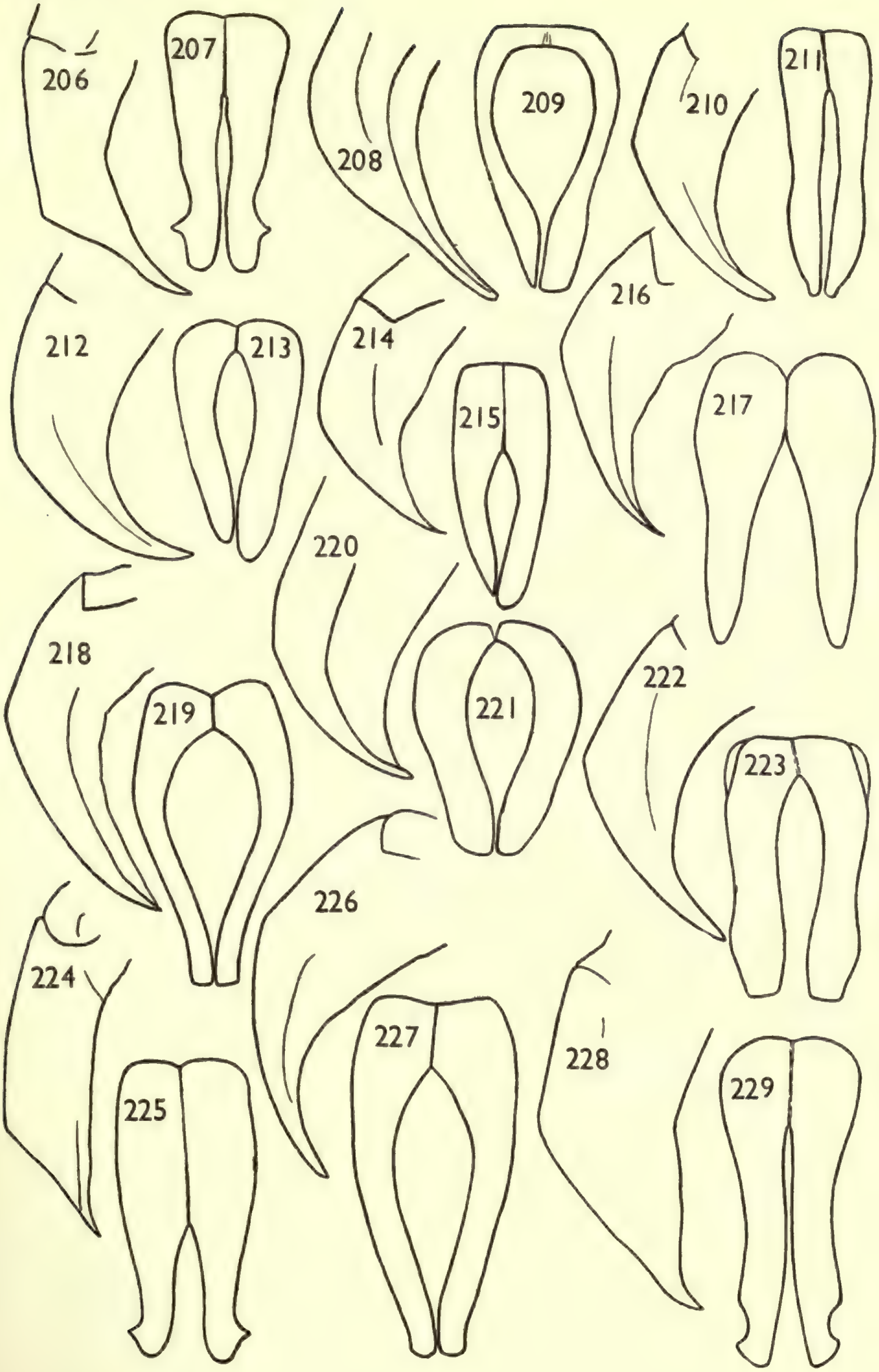

PLATE 14

FIG. 230. *Schizonycha filiola* Moser. Paramere, lateral.
FIG. 231. *Schizonycha filiola* Moser. Parameres.
FIG. 232. *Schizonycha dilucida* Brenske. Paramere, lateral.
FIG. 233. *Schizonycha dilucida* Brenske. Parameres.
FIG. 234. *Schizonycha infans* (Péringuey). Paramere, lateral.
FIG. 235. *Schizonycha infans* (Péringuey). Parameres.
FIG. 236. *Schizonycha corrosa* Burmeister. Paramere, lateral.
FIG. 237. *Schizonycha corrosa* Burmeister. Parameres.
FIG. 238. *Schizonycha minima* Péringuey. Parameres (after Péringuey).
FIG. 239. *Schizonycha affinis* Boheman. Paramere, lateral.
FIG. 240. *Schizonycha affinis* Boheman. Parameres.
FIG. 241. *Schizonycha fimbriata* Brenske. Parameres.
FIG. 242. *Schizonycha natalensis* Brenske. Paramere, lateral.
FIG. 243. *Schizonycha natalensis* Brenske. Parameres.
FIG. 244. *Schizonycha russula* Boheman. Paramere, lateral.
FIG. 245. *Schizonycha russula* Boheman. Parameres.
FIG. 246. *Schizonycha ovatula* Brenske. Paramere, lateral.
FIG. 247. *Schizonycha ovatula* Brenske. Parameres.
FIG. 248. *Schizonycha fraudigera* Péringuey. Paramere, lateral.
FIG. 249. *Schizonycha fraudigera* Péringuey. Parameres.
FIG. 250. *Schizonycha pauperata* Péringuey. Paramere, lateral.
FIG. 251. *Schizonycha pauperata* Péringuey. Parameres.
FIG. 252. *Schizonycha rurigena* Brenske. Paramere, lateral.
FIG. 253. *Schizonycha rurigena* Brenske. Parameres.

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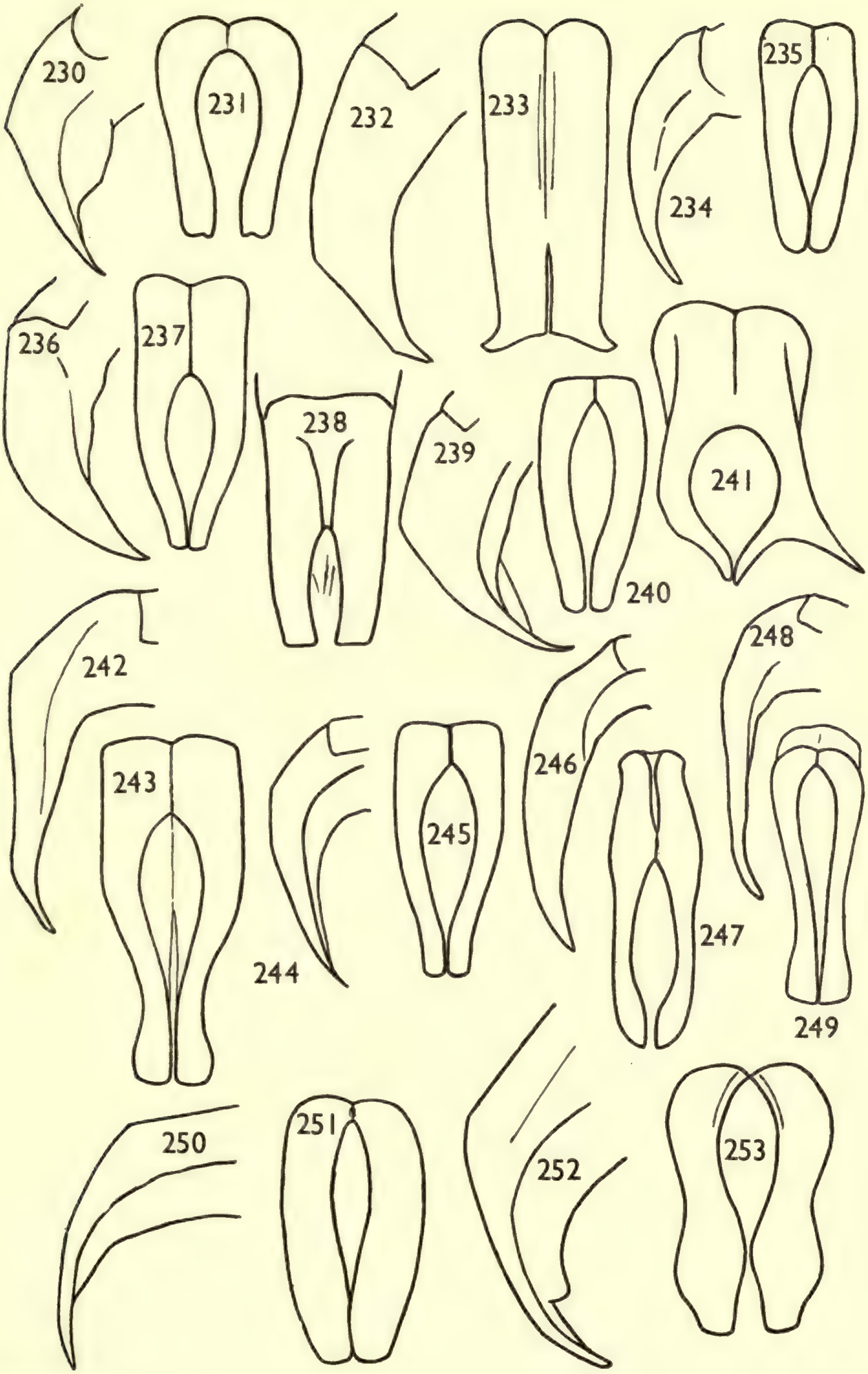

SPHECIDAE (HYM.) RÉCOLTÉS EN TRIPOLITAINE ET EN CYRÉNAÏQUE

PAR M. KENNETH M. GUICHARD

JACQUES DE BEAUMONT

BRITISH MUSEUM
22 JUN 1960
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Musée zoologique de Lausanne

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Pp. 219–251 ; 16 *Text-figures*

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SPHECIDAE (HYM.) RÉCOLTÉS EN TRIPOLITAINE ET EN CYRÉNAÏQUE PAR M. KENNETH M. GUICHARD

Par JACQUES DE BEAUMONT

J'APPORTE ici la troisième contribution à l'étude des Sphecidae nord-africains basée sur du matériel récolté par M. Kenneth M. Guichard. Ce dernier est en effet retourné en Libye en 1957 et 1958 pour ses recherches acridologiques et il en a profité pour rassembler une nouvelle série d'Hyménoptères. Je suis heureux de le féliciter ici de cette féconde activité et de le remercier de sa précieuse collaboration.

Le matériel se compose de 562 spécimens, parmi lesquels j'ai reconnu 104 espèces, auxquelles il faudrait ajouter quelques individus que je n'ai pas pu déterminer. Je décris 3 espèces et 2 sous-espèces nouvelles ; sans compter ces dernières, 20 espèces au moins n'avaient pas été signalées jusqu'à présent en Libye. Les récoltes de M. Guichard permettent par ailleurs de compléter dans une large mesure nos connaissances sur la répartition géographique et sur la variation de bien des formes.

Je donne ci-dessous la liste des localités de capture ; certaines d'entre elles ne figurent pas sur les cartes habituelles de la région ; des indications complémentaires sont alors données [ ] ; dans certains cas, les noms qui figurent sur les étiquettes sont différents de ceux de cette liste ; ils sont alors donnés ( ).

TRIPOLITAINE

1. *Zuara*, 7–21.v.58.
2. *Sabratha*, 3.ix.57, 8.iv.58.
3. *Tripoli town*, 23.viii.57.
4. *Tigi*, 4.vi.57.
5. *Giosc*, 7.v.58.
6. *Ain el Auenia* [15 km. W. of Jefren], 25.v.58.
7. *Garian hills*, 5–16.ii.58.
8. *Schiaschiara* [near Tarhuna], 13.vi.48.
9. *Gasr Garabulli* [40 km. W. of Homs], 4.ix.57.
10. *Homs*, 13.vii.57.
11. *Leptis Magna*, 9–14.vii.57.
12. 2 *km. E. of Wadi Caam*, 3.vii.57.
13. *Tauorga* (Tanovga), 20.viii.57.
14. *Buerat*, 5–16.ii.58.
15. 72 *km. W. of Nofilia*, 24.vii.57.
16. *Ben Giauad* [a few miles from Nofilia] (Nofilia), 24.vii.57.

CYRÉNAÏQUE

17. 20 *km. E. of El Agheila,* 24.vii.57.
18. *Brèga* (parfois : 40 km. E. of El Agheila), 4–31.iii.58, 20.vii.57.
19. *Agedabia,* 4–31.viii.58.
20. 10 *km. S. of Ghemines,* 6.iv.58.
21. *Benghazi,* 4–10.iv.58.
22. *Rommel's Pool* [10 km. NE. of Benghazi], 17.viii.57.
23. *Bersis,* 26.vii.57.
24. *Tolmeita-Tocra track,* 17.iii.58.
25. *Tolmeita,* 4–31.viii.58
26. *Benina plain,* 27.iii.58.
27. *Regima,* 25.vii.57.
28. *El abiar,* 11.iv.58.
29. *Barce,* 27.vii.57.
30. *Wadi Kuf* [30 km. W. of Cyrene], 4–10.iv.58.
31. *Gasr el Lebia* [10 km. SW. of Wadi Kuf] (Gasr, Mosiacs), 30.vii.57.
32. *Gasr Shahaden* [near Wadi Kuf] (Gasr Sh.), 29.vii.57.
33. *Cyrene,* 31.vii.57.
34. *Apollonia,* 1.viii.57.
35. *Ras el Hilal* (Wadi Glaa), 12–13.viii.57.
36. *Latrun* [12 km. E. of Ras el Hilal], 2.viii.57.
37. *Wadi Derna,* 3–4.viii.57.
38. *Baltet er Ramla,* 10.viii.57.
39. *Tmimi,* 9.viii.57.
40. *Ain el Gazala,* 9.viii.57.
41. *El Adem,* 8.viii.57.
42. *Tobruck shore,* 5.viii.57.
43. *Wadi el Mra* [50 km. W. of Tobruck], 6.viii.57.
44. *Capuzzo,* 7.viii.57.

Un des problèmes de la zoogéographie nord-africaine consiste à tracer la limite entre les régions méditerranéenne et saharienne. Dans le précédent travail consacré aux récoltes de M. Guichard, j'avais indiqué qu'il est très difficile, en se basant seulement sur l'étude des Sphecidae, d'établir cette limite en Libye. Les nouvelles récoltes de M. Guichard permettent de compléter un peu les données précédentes, mais un matériel plus important, récolté en toute saison, serait nécessaire pour être plus affirmatif. Je pense d'ailleurs reprendre ce problème en tenant compte de toutes les espèces qui ont été jusqu'à présent signalées en Libye, mais cela nécessite la vérification de bien des déterminations. Voici quelques brèves indications.

Par sa végétation et sa faune générale, la *Cyrénaïque septentrionale* (région côtière et Djebel Akhdar, stations 21–37) est généralement considérée comme méditerranéenne. L'étude de la faune des Sphecidae confirme ce point de vue. Les 60 espèces récoltées par M. Guichard et citées dans ce travail ou dans le précédent, sont pour la plupart méditerranéennes dans leur répartition générale ; 37 d'entre elles, soit le 62%, par exemple, se retrouvent dans une région ou l'autre de l'Europe méridionale; il n'y a qu'une dizaine d'espèces que l'on peut considérer comme plus ou moins sahariennes ; le reste de l'effectif est formé d'espèces nord-africaines de répartition méditerranéenne ou d'espèces endémiques à affinités méditerranéennes.

Les récoltes faites en *Marmarique*, soit dans la région côtière à l'est du Djebel Akhdar (stations 39–44), auxquelles on peut joindre celles de Baltet er Ramla (st. 38) sont insuffisantes ; l'on peut cependant noter que, sur 36 espèces, 17 (47%) se retrouvent en Europe ; la proportion d'éléments sahariens (10 espèces environ) est plus forte.

La région de la *Syrte* (stations 13–20) parait plus nettement saharienne ; sur 24 espèces récoltés, 6 seulement (25%) habitent aussi l'Europe et une dizaine sont de type saharien.

La *Tripolitaine septentrionale* (région côtière et Djebel Nefoussa) a livré 100 espèces. Si l'on prend la région dans son ensemble, on trouve 40 espèces dont l'aire de répartition atteint l'Europe méridionale et une quarantaine d'espèces qui sont de type saharien, mais dont certaines, dans d'autres contrées, pénètrent plus ou moins dans la région méditerranéenne. La faune des Sphecidae est donc d'un type beaucoup plus saharien en Tripolitaine qu'en Cyrénaïque, mais il m'est difficile de dire s'il faut considérer cette zone comme faisant partie de la région saharienne proprement dite ; il serait d'ailleurs nécessaire de reprendre ce problème de façon plus détaillée, en traitant séparéement la faune du Djebel et celle des différentes zones de la côte ; on remarquerait par exemple qui certaines des espèces les plus strictement sahariennes ont été récoltées dans les stations 1, 4, 5 et 12 ; comme je l'ai dit ci-dessus, j'espère pouvoir revenir sur cette question.

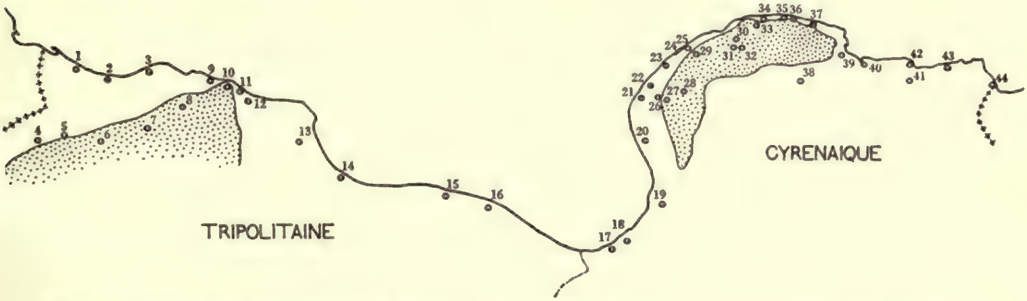


FIG. 1. Carte des stations de récolte. Les zones pointillées représentent les Djebels.

Les figures qui illustrent ce travail ont été exécutées par Mademoiselle D. Petitpierre, que je remercie de sa collaboration.

Genre *AMMOPHILA* Kirby

Ammophila (Podalonia) tydei Le Guillou

Zuara, 1 ♂ ; Tripoli, 1 ♂ ; Gasr Garabulli, 1 ♀ ; Brèga, iii, 1 ♂, 3 ♀ ; Wadi Derna, 1 ♂, 1 ♀.

Les individus récoltés en viii et ix sont semblables à ceux que l'on rencontre généralement en Afrique du nord, ayant une pilosité argentée couchée bien développée sur les mésopleures, le bas de la face et le clypéus et montrant sur le mésonotum une ponctuation espacée. Les spécimens de iii et v 1958, provenant soit de Cyrénaïque soit de Tripolitaine diffèrent (♂♀) par l'absence complète de pilosité argentée couchée sur les mésopleures, son plus faible développement sur la tête, la ponctuation plus dense de la partie antérieure du mésonotum ; la ponctuation du clypéus de la ♀ est un peu plus forte. J'ai tout d'abord supposé qu'il s'agissait d'une espèce distincte et je n'ai d'ailleurs pas complètement abandonné cette hypothèse ; mais, pour s'en assurer, il serait nécessaire d'étudier plus complètement la variation géographique de *tydei* et s'assurer aussi qu'il ne s'agit pas d'un dimorphisme saisonnier. L'armature génitale du ♂ m'a paru identique à celle des *tydei* typiques.

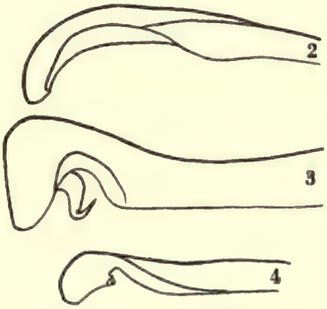
Ammophila (Podalonia) massinissa Morice

Brèga, iii, 2 ♀ ; Agedabia, 1 ♂.

Cette forme est généralement considérée comme " variété " d'*atrocyanea* Eversmann mais, comme on va le voir, elle en est très probablement spécifiquement distincte. Disons tout d'abord qu'*atrocyanea* et *massinissa* font partie du groupe d'*affinis* Kirby, caractérisé par l'aire dorsale du propodéum glabre et finement striée et par la présence presque constante d'une pointe plus ou moins développée aux hanches antérieures ; elles se distinguent d'*affinis* et d'*ebenina* Spinola par la présence de reflets bleus plus ou moins développés sur les parties noires de l'abdomen, la présence d'une impression longitudinale au milieu du bord postérieur du collare, la sculpture du mésonotum différente, l'absence totale de dent aux griffes, la présence d'une épine à l'extrémité des valves du pénis (Text-figs. 2–4).

Roth (1928) et Alfieri (1946) indiquent que la var. *massinissa*, que l'on trouve en Afrique du nord à côté de la forme typique, se distingue de celle-ci par la taille plus faible et la sculpture du thorax. Roth décrit le ♂ de la f. *atrocyanea s.s.* qui, contrairement à sa ♀, a l'abdomen en partie rouge. La très grande différence de taille et le fait que les deux formes se trouvent parfois dans les mêmes localités sans qu'il y ait, semble-t-il, d'intermédiaires, sont déjà une présomption en faveur de leur distinction spécifique. J'ai examiné 1 ♂ et 2 ♀ d'*atrocyanea* provenant de Médénine, cités par Roth, et que Mademoiselle Kelner-Pillault a eu l'obligeance de me soumettre (Mus. Paris), aux individus de *massinissa* cités ci-dessus, ainsi qu'à 2 ♀ capturées en Tripolitaine en 1952 par M. Guichard et j'ai constaté les differences suivantes.

La taille de *a.* ♂ est de 17 mm., de *m.* ♂ de 11 mm., de *a.* ♀ de 19 mm. (Roth donne 19–23 mm.), de *m.* ♀ de 13–15 mm. (Roth donne 13–14 mm.) ; le ♂ *a.* a les 4 premiers segments abdominaux (pétiole non compris) rouges, les 3 derniers noirs avec des reflets métalliques ; le ♂ *m.* n'a que 3 segments rouges, les derniers noirs sans reflets ; la pilosité argentée couchée du bas de la face et du clypéus est beaucoup plus développée chez *a.* que chez *m.* où, sous certains angles, elle ne cache pas complètement les téguments (l'individu est frais) ; chez *a.* ♂, l'avant dernier article des palpes labiaux est plus d'1,5 fois plus long que le dernier, chez *m.* moins d'1,5 fois ; chez *a.* ♂, le bord antérieur du clypéus est assez nettement échancré en arc, avec des angles latéraux nets ; chez *m.*, les angles latéraux sont arrondis et le bord antérieur n'est un peu échancré que dans sa partie médiane ; chez *a.* ♀ le clypéus est plus fortement ponctué ; son bord antérieur est saillant en arc surbaissé entre les angles latéraux, avec une bordure imponctuée assez large, pas nettement limitée à la base ; chez *m.* ♀, le clypéus est beaucoup plus finement ponctué ; entre les angles latéraux, le bord antérieur est droit ou sinueux, muni d'une bordure imponctuée étroite, mais nettement limitée à la base ; chez les deux sexes, la tête est plus brillante chez *a.*, avec une ponctuation beaucoup plus forte et moins espacée ; chez *a.* ♀, le triangle ocellaire est limité en arrière par un sillon très net, qui manque chez le ♂ et chez *m.* Chez *a.* ♀, le collare est plus brillant, le mésonotum est très brillant, avec une ponctuation nette, pas entremélée de stries, pas très dense en avant, très espacée en arrière ; chez *m.* ♀, la partie antérieure du mésonotum est mate, avec une ponctuation entremélée de stries transversales ; chez *m.* ♂, la ponctuation de la partie antérieure du mésonotum est beaucoup moins nette que chez *a.* ♂, où elle ressemble à la ♀ ; chez *a.* le scutellum est plus fortement ensellé et beaucoup plus nettement strié longitudinalement ; les côtés du thorax sont très irrégulièrement réticulés chez *a.*, tandis qu'ils sont distinctement striés obliquement chez *m.*; la striation de la face dorsale du propodéum est plus fine chez *a.* que chez *m.* La pointe de la face inférieure des hanches est plus développée chez *a.* ♀ que chez *m.* ♀ ; chez *a.* ♂, elle est à peine indiquée ; elle manque chez *m.* ♂. L'extrémité des valves du pénis est différente chez les deux espèces (Text-figs. 3 et 4) ; elle est plus abruptement tronquée chez *a.*, avec une épine beaucoup plus développée.



FIGS. 2–4. *Ammophila*, valve du pénis. (2) *A. micipsa* Morice. (3) *A. atrocyanea* Eversmann. (4) *A. massinissa* Morice.

Il est possible que certaines des différences signalées soient dûes à la croissance dysharmonique, mais les deux formes sont cependant assez caractérisées pour qu'on leur concède le rang spécifique. Il serait encore nécessaire de vérifier si les individus nord-africains que nous nommons *atrocyanea* sont bien conformes au type d'Eversmann, décrit d'Orenburg. Rappelons encore que Kohl a décrit une *Ammophila psilocera*, admettant par la suite qu'elle était le ♂ d'*atrocyanea* ; ce spécimen avait les pattes en partie rouges.

Ammophila (Podalonia) minax Kohl

Brèga, iii, 2 ♀.

Ammophila (Eremochares) dives melanopus Lucas

Leptis Magna, 2 ♀ ; Rommel's Pool, 1 ♀ ; Bersis, 5 ♀ ; Wadi Derna, 1 ♂ ; Tmimi, 1 ♀.

Ammophila (s.s.) haimatosoma Kohl

Leptis Magna, 2 ♂ ; Tauorga, 1 ♂, 1 ♀.

Cette espèce montre une certaine variation dans le développement de la couleur rouge et de la vestiture argentée. Les individus ♂ de Tripolitaine présentent une pubescence argentée couchée dense, plus développée que chez les ♂ de Biskra, par exemple.

Ammophila (s.s.) gracillima Taschenberg

Ben Giauad, 1 ♂, 1 ♀.

Ammophila (s.s.) guichardi de Beaumont

Zuara, 2 ♀ ; Baltet er Ramla, 3 ♀.

Ammophila (s.s.) hemilauta Kohl

Zuara, 1 ♂ ; Buerat, 1 ♂ ; 72 km. W. of Nofilia, 1 ♂ ; Brèga, iii, 5 ♂, 2 ♀ ; Rommel's Pool, 1 ♂, 1 ♀ ; Tmimi, 1 ♀ ; Tobruck shore, 1 ♂, 1 ♀.

Ammophila (s.s.) djaouak de Beaumont

Rommel's Pool, 1 ♂ ; Tmimi, 3 ♂.

Ammophila (s.s.) quadraticollis Costa

Rommel's Pool, 1 ♂ ; Regima, 1 ♀.

Ammophila (s.s.) heydeni Dahlbom

Rommel's Pool, 1 ♀ ; Gasr el Lebia, 2 ♂ ; Barce, 2 ♀ ; Wadi Derna, 1 ♂, 1 ♀.

Ces spécimens, de même que les autres individus de Cyrénaïque que j'ai examinés, ont une coloration assez particulière de l'abdomen : le pétiole, le postpétiole et les segments 2 et 3 sont rouges, les segments suivants entièrement noirs ; le postpétiole est taché de noir à la base ; le 3e tergite est parfois noir à l'extrémité. Pattes de coloration normale ; pilosité argentée relativement peu développée.

Ammophila (s.s.) erminea Kohl

Capuzzo, 1 ♂.

Ammophila (s.s.) apicalis electa Kohl

Brèga, iii, 4 ♀ ; Agedabia, 1 ♂.

Genre *SPHEX* Linné

Sphex (Palmodes) occitanicus Lepeletier et Serville

El Abiar, 5 ♂.

Ces individus ont l'abdomen noir et les ailes fortement enfumées ; ils appartiennent probablement à la forme décrite par Gribodo sous le nom de *Sphex cyrenaica*.

Sphex (Calosphex) niveatus Dufour

Zuara, 1 ♂.

Sphex (Prionyx) viduatus Christ

Bersis, 1 ♂, 1 ♀.

Sphex (Prionyx) albisectus Lepeletier et Serville

Rommel's Pool, 1 ♀ ; Apollonia, 1 ♀ ; Tmimi, 1 ♀.

Sphex (Prionyx) lividocinctus Costa

Tmimi, 1 ♀.

Sphex (s.s.) pruinosus Germar

Ras el Hilal, 2 ♂ ; Baltet er Ramla, 1 ♂.

Sphex (s.s.) maxillosus Fabricius

Barce, 1 ♂ ; Cyrene, 1 ♀ ; Latrun, 1 ♂ ; Wadi Derna, 1 ♀.

Sphex (s.s.) flavipennis Fabricius

Gasr Shahaden, 1 ♂ ; Ras el Hilal, 1 ♀ ; Wadi Derna, 1 ♂.

Sphex (s.s.) libycus de Beaumont

Tmimi, 1 ♀ ; Capuzzo, 2 ♂.

J'ai récemment examiné deux ♀ de cette espèce provenant du littoral égyptien (Priesner). Le pétiole de la ♀ est parfois presque 2 fois aussi long que large.

Sphex (s.s.) afer Lepeletier

Bersis, 1 ♀.

La race typique, qui habite le NW. de l'Afrique, est caractérisée par l'abdomen noir chez le ♂ et noir et rouge chez la ♀ et par ses ailes fortement enfumées ; dans l'extrême sud de l'Europe et dans la Méditerranée orientale, on rencontre la subsp. *afer sordidus* Dahlbom, qui a les ailes beaucoup plus claires, la pruinosité blanche et non rousse sur l'abdomen du ♂. La ♀ récoltée par M. Guichard est bien remarquable : elle a l'abdomen entièrement noir et les ailes aussi claires que chez *afer sordidus* ; les pattes sont noires, à peine teintées de ferrugineux à la face interne des tibias antérieurs. Il est naturellement possible que la coloration de cet individu soit exceptionnelle, mais si l'on en trouve de semblables dans la région, ils mériteraient de constituer une sous-espèce. M. Guichard avait précédemment récolté en Tripolitaine 2 ♂ et 1 ♀, cette dernière avec l'abdomen normalement coloré ; en examinant à nouveau l'un des ♂, j'ai remarqué qu'il avait les ailes moins enfumées que les ♂ d'Algérie ou du Maroc.

Note sur les Sphex *du groupe de* maxillosus

Récemment (1957), van der Vecht a attiré l'attention sur un caractère qui a, dans certains groupes de *Sphex*, une grande importance taxonomique : la structure de ce qu'il nomme les *aires sensorielles* (sensory areas) sur les articles antennaires des ♂. Ce sont des zones longitudinales, plus ou moins nettement concaves, limitées par de fines carènes, situées à la face inférieure des articles 3 et suivants des antennes. Pour bien les apprécier, il est nécessaire de faire tourner l'insecte sous la loupe binoculaire de manière à examiner toutes les faces des antennes ; avec un peu de pratique, on s'aperçevra que certains articles ont deux aires sensorielles, tandis que sur d'autres (les articles médians), il y en a trois : deux aires latérales et une aire médiane ; lorsque cette dernière est très développée, les aires latérales deviennent étroites. Si l'on examine par exemple les antennes d'un *Sphex maxillosus* ♂, on verra, à la face inférieure, sur la moitié terminale du 3e article et sur le 4e une carène médiane, séparant deux aires latérales, peu nettement limitées vers l'extérieur ; généralement à partir du 5e article et jusqu'au 10e, la face inférieure est parcourue par l'aire sensorielle médiane, très nettement limitée, bordée de chaque côté par les aires latérales, elles mêmes très nettement limitées ; sur les derniers articles, l'aire médiane est remplacée par une zone peu nettement limitée. On peut considérer, comme caractère taxonomique facilement utilisable, les articles ayant une aire médiane ; dans l'exemple qui vient d'être choisi : 5–9 ; parfois, ces aires médianes ne sont présentes que sur une partie du premier ou du dernier article qui les porte, ce que l'on pourra désigner par 5,5–9 ou 5–7,5 par exemple.

L'étude que j'ai faite sur le conseil de M. van der Vecht m'a montré la grande utilité de ce caractère pour distinguer les ♂ du groupe de *maxillosus* et m'a montré aussi qu'il présentait, chez certaines espèces, une intéressante variation. Je donne ici les observations que j'ai pu faire jusqu'à maintenant.

Sphex afer Lepeletier. 15 ♂ d'Afrique du nord, 1 d'Espagne et 4 de Chypre ont montré des aires sensorielles médianes sur les articles 6–8 des antennes.

Sphex flavipennis Fabricius. 45 ♂ de l'Europe méridionale, de l'Afrique du nord et de la Méditerrranée orientale présentent des aires médianes étroites sur les articles 7–8 ; un seul ♂, de Chypre, n'en montre que sur l'article 8.

Sphex libycus de Beaumont. La proche parenté de *libycus* avec *flavipennis* apparaît nettement ; chez 3 ♂ examinés, les aires médianes se situent sur les articles 7–8, mais elles sont nettement plus larges que chez *flavipennis*.

Sphex maxillosus Fabricius. L'examen des aires sensorielles confirme entièrement la valeur des caractères distinctifs que j'avais notés entre le ♂ de *flavipennis* et celui de cette espèce, mais montre aussi qu'il existe une assez grande variation, en partie géographique, dans la structure des antennes.

Sur 72 ♂ d'Europe étudiés, 50 ont des aires médianes sur les articles 5–10, 5 sur les articles 4–10, 3 sur les articles 5–9, 1 sur les articles 5–11 ; 13 ont des valeurs intermédiaires ou différentes sur les deux antennes (par exemple 4,5–10 ou 5–9,5).

Sur 3 ♂ de la subsp. *mavromoustakisi* de Beaumont, de Chypre, 2 sont du type 4–10 et 1 du type 4–11.

Sur 7 ♂ de l'Afrique du nord, 4 sont du type 5–8, 1 du type 5–8,5, 2 du type 5–9 et 1 du type 5–10 ; en moyenne, les aires médianes sont donc développées sur un moins grand nombre d'articles que chez les individus européens.

Enfin, le seul ♂ de Corse que j'ai vu n'a d'aires médianes que sur les articles 6–8.

Genre *SCELIPHRON* Klug

Sceliphron (Chalybion) targionii Caruccio

Wadi Derna, 1 ♂.

Genre *PHILANTHUS* Fabricius

Philanthus triangulum abdelakader Lepeletier

Bersis, 4 ♂, 1 ♀ ; Apollonia, 1 ♀.

Philanthus rutilus Spinola

Brèga, iii, 2 ♂, 2 ♀.
Individus colorés comme ceux d'Egypte.

Philanthus variegatus ecoronatus Dufour

Baltet er Ramla, 1 ♂, 2 ♀ ; El Adem, 1 ♂.

J'ai noté précédemment que les exemplaires récoltés en 1954 en Tripolitaine par M. Guichard étaient un peu plus foncés que ceux de Biskra, différant donc de ceux du Maroc méridional, du Hoggar, du Fezzan et du Tibesti, chez qui la couleur jaune est plus étendue. Or, les 2 ♂ et 2 ♀ de Cyrénaïque sont semblables à ces derniers ; les ♂ ont les côtés du thorax et le propodéum fortement tachés de jaune ; une des ♀ a le mésonotum en grande partie jaune et jaune ferrugineux. Les individus de 1954 ayant été récoltés durant les premiers mois de l'année et ceux de 1957 au mois d'août, on peut se demander si la différence entre les individus de Tripolitaine et de Cyrénaïque est saisonnière ou géographique.

Philanthus coarctatus Spinola

Tripoli town, 4 ♂, 1 ♀ ; Leptis Magna, 1 ♂, 1 ♀.

Genre *CERCERIS* Latreille

Cerceris sabulosa algirica Thunberg

Giosc, 1 ♀ ; Schiaschiara, 3 ♂ ; Cyrene, 3 ♀ ; Ras el Hilal, 1 ♂, 1 ♀ ; Wadi Derna, 3 ♂, 1 ♀ ; Ain el Gazala, 1 ♀.

L'aire dorsale du propodéum est souvent en grande partie lisse.

Cerceris pulchella Klug

Zuara, 5 ♂, 2 ♀.

Ces spécimens présentent la coloration particulière à la race de Tripolitaine, telle que je l'ai signalée ; ils sont en partie décolorés par le KCN.

Cerceris clytia de Beaumont

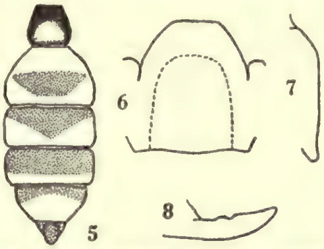
Baltet er Ramla, 1 ♂ ; Tmimi, 1 ♀ ; El Adem, 10 ♂, 1 ♀. Autres exemplaires : Algérie : Biskra, 24.v.97, 1 ♀ (Eaton leg., British Museum) ; Israël : Beersheba, 13.vii, 2 ♀ (Bytinski-Salz leg., type in coll. mea).

La description de cette espèce, basée sur les ♀ d'Israël et d'Algérie citées ci-dessus, doit paraître dans la 2e partie de l'étude sur les Sphecidae d'Israël que nous publions en collaboration, le Dr. Bytinski-Salz et moi même. Les exemplaires récoltés par M. Guichard me permettent de compléter ma documentation et il me semble avantageux de donner ici la description des deux sexes, ne sachant pas quand doit paraître le travail que j'ai signalé ci-dessus.

L'espèce fait partie du groupe de *rybyensis* L.

♀. 8–10 mm. Tête et thorax noirs avec des dessins, d'un blanc légèrement jaunâtre, très développés, comprenant : les mandibules (à pointe noire), le clypéus (à bord antérieur jaunâtre), la face, avec une ligne médiane atteignant presque, en s'élargissant à l'extrémité, l'ocelle antérieur et des lignes longeant le bord interne des yeux, se prolongeant parfois, en se recourbant l'une vers l'autre, en arrière des ocelles postérieurs, les tempes et la plus grande partie de la face inférieure de la tête, la plus grande partie du prothorax, deux taches au scutellum (réunies chez les individus africains), les mésopleures et le mésosternum, une partie des métapleures et le métasternum, la plus grande partie du propodéum (l'aire dorsale et le milieu de la face postérieure sont noirs, les zones avoisinant l'aire dorsale noires ou plus ou moins ferrugineuses). L'abdomen est très élégamment coloré (Text-fig. 5) ; il est en bonne partie d'un blanc légèrement jaunâtre ; la base et les côtés du 1er tergite sont noirs et plus ou moins ferrugineux ; les tergites 2–5 portent des bandes ferrugineuses ; celle du 2e segment ne touche ni le bord antérieur ni le bord postérieur ; celles des segments 3–5 sont situées à la base ; 6e segment ferrugineux ; quelques taches ferrugineuses sur les sternites. Scapes blanc jaunâtres ; funicules ferrugineux, un peu obscurcis en dessus. Pattes d'un blanc jaunâtre avec des dessins noirâtres comprenant : une tache allongée à la face postérieure des fémurs 1 et 2, toute la face postérieure des fémurs 3, une tache occupant presque toute la longueur de la face postérieure (interne) des tibias 3, passant au ferrugineux à ses deux extrémités. Ailes hyalines à bord apical très légèrement enfumé.

La sculpture est moyennement forte pour une espèce de cette taille. Mandibules avec deux petites dents au bord interne (Text-fig. 8) ; côtés de la face et lobes latéraux du clypéus mats, avec une ponctuation doubles, dense, recouverts d'une courte pilosité blanche qui cache presque complètement les téguments ; lobe médian du clypéus à bord antérieur légèrement saillant au milieu et limité de chaque côté par un angle net (Text-fig. 6) ; sa base est plus fortement convexe que chez les espèces voisines (Text-fig. 7) ; la dépression, très peu profonde, n'occupe pas toute la largeur du sclérite et se trouve limitée sur les côtés, comme chez *eryngii* Marquet, par de légers bourrelets ; cette zone médiane est brillante et irrégulièrement sculptée, tandis que les parties latérales du lobe médian sont mates et velues comme les lobes latéraux ; la face est relativement étroite ; sa largeur au niveau des insertions antennaires est égale à la distance séparant le bord inférieur de celles-ci du bord antérieur du clypéus ; bords internes des yeux nettement, mais pas fortement divergents vers le bas ; la ponctuation du haut de la face et du vertex n'est nulle part très dense ; sur le vertex, il y a des espaces plus grands que les points ; POL = OOL ; la tête est fortement rétrécie en arrière des yeux ; sa face inférieure est brillante, à ponctuation espacée, sans stries. Collare à bord supérieur légèrement concave, avec des épaules nettement saillantes, mais arrondies ; sa partie postérieure, le long du mésonotum, est lisse et brillante, à l'exception d'un petit triangle médian chagriné ; tegulae brillantes avec un ou deux points microscopiques ; prosternum brillant, sans carènes, avec de petits points espacés, nets ; appendice des hanches 1 court, non ponctué ; dos du thorax brillant ; mésonotum avec une ponctuation relativement dense en avant et en arrière, mais ayant, sur le disque, des espaces beaucoup plus grands que les points ; scutellum à ponctuation très espacée ; partie supérieure des mésopleures limitée dans le bas par une fine carène ; mésosternum brillant, avec une microponctuation de base et des points plus gros avec des espaces par endroits plus grands que les points ; propodéum assez brillant, mais avec une fine sculpture de base, déjà visible à × 30 ; l'aire dorsale est lisse avec quelques fines stries transversales tout à la base ; elle est limitée sur les côtés et parcourue au milieu par des sillons ; au voisinage de l'aire dorsale, la ponctuation du propodéum n'est pas très dense, avec des espaces aussi grands que les points. Sur sa face dorsale, le premier segment abdominal est aussi long que large ; la ponctuation des tergites est dense ; il n'y a nulle part d'espaces plus grands que les points ; l'aire pygidiale est de forme assez semblable à celle de *rybyensis* ; sa surface est mate, un peu irrégulièrement sculptée, avec quelques petits points à la base ; plateforme du 2e sternite atteignant le milieu du segment, faiblement surélevée, mais nette ; sa surface est microsculptée, mais brillante, avec quelques points ; son bord postérieur est à peu près droit ; les sternites 2–4 sont très peu ponctués dans leur partie médiane, plus densément sur les côtés ; le 5e sternite est ponctué sur toute sa surface, avec des angles postérieurs légèrement saillants. Métatarse 3 avec une épine sur sa face externe, parfois accompagnée d'une 2e épine plus petite.



FIGS. 5–8. *Cerceris clytia* de Beaumont ♀. (5) Abdomen. (6) Clypéus de face. (7) Clypéus de profil. (8) Mandibule.

♂. 6,5–8,5 mm. Les dessins sont d'un jaune un peu plus soutenu que chez la ♀; tête et thorax comme chez cette dernière ; les stries au bord interne des yeux ne se prolongent pas sur le vertex, mais peuvent être unies à la strie médiane ; dans ce cas, la face est jaune jusqu'au niveau de l'ocelle antérieur ; la moitié des spécimens montrent deux taches jaunes sur l'aire dorsale du propodéum. Abdomen jaune, le 1er tergite noir à la base, les tergites 4 et 5 montrant à la base une zone ferrugineuse mal définie ; les dépressions terminales des tergites ferrugineuses. Antennes comme chez la ♀ ; pattes un peu plus claires que chez celle-ci, celles des deux premières paires souvent entièrement jaunes ; les zones foncées des fémurs et tibias 3 un peu moins étendues.

Sculpture de la face et des lobes latéraux du clypéus comme chez la ♀ ; le lobe médian est plus fortement convexe que chez les espèces voisines, en particulier dans sa partie basale ; son bord antérieur n'est pas saillant au milieu ; sa partie médiane, jusqu'au bord antérieur, est brillante, avec des points assez nets, séparés par des espaces beaucoup plus grands qu'eux mêmes ; la face est étroite ; sa largeur, au niveau des insertions antennaires, égale à peu près les 5/6e de la longueur qui sépare ces dernières du bord antérieur du clypéus ; bords internes des yeux nettement divergents en haut et en bas ; au dessus des insertions antennaires, la face est brillante, avec une ponctuation dense ; sur le vertex, il y a des espaces brillants, aussi grands ou presque aussi grands que les points ; POL = OOL. Structure et sculpture du thorax rappelant ce que l'on voit chez la ♀, mais, comme toujours, les téguments sont plus brillants et la ponctuation un peu plus dense ; sur le disque du mésonotum, les espaces restent cependant plus grands que les points. Tergites à ponctuation dense ; sternites brillants, avec des points très espacés ; les angles postérieurs du 6e sternite ne sont pas étirés en pointe, mais forment un angle droit très net. Funicules très brièvement ciliés, leur 2e article plus long que le 3e, presque deux fois aussi long que large à l'extrémité ; le 3e article à peu près 1, 25 fois aussi long que large ; les articles médians plus larges que longs.

Cette espèce se reconnait surtout à sa coloration : faces latérales et inférieure du thorax jaunes avec le mésonotum noir ; face interne des fémurs et des tibias 3 en grande partie foncée ; dessin particulier de l'abdomen de la ♀. Elle est voisine de *gaetula* de Beaumont, *eryngii* Marquet, *amathusia* de Beaumont.

Cerceris sp.

Tmimi, 1 ♂.

Espèce du groupe de *rybyensis*, probablement inédite, mais qu'il n'est pas souhaitable de décrire en l'absence de ♀.

Cerceris bupresticida libyca subsp. nov.

Bersis, 8 ♀.

Les *Cerceris bupresticida* Dufour que l'on rencontre au Maroc, en Algérie et en Tunisie ont sur tout le corps des dessins jaunes plus développés que ceux de l'Europe du SW. (de Beaumont, 1952). Les ♀ récoltées à Bersis par M. Guichard sont morphologiquement semblables, mais présentent une coloration assez différente, comparable à celle que j'ai décrite (1950*a*) pour une ♀ de l'oasis de Siwa : les dessins clairs sont moins développés sur la tête et le thorax que chez les spécimens plus occidentaux, mais l'abdomen ne présente pas de zones noires, si ce n'est parfois sur l'aire pygidiale.

La coloration de ces ♀ de Bersis a probablement été en partie modifiée par le KCN qui a fait virer certaines parties jaunes au ferrugineux jaunâtre ; cette décoloration est en tous cas certaine pour des spécimens d'autres espèces capturées le même jour au même endroit. Les trois plus grandes ♀ (dont le type) semblent avoir subi la transformation à un moindre degré et sont colorées de la manière suivante. Clypéus, deux taches sur la face et l'écusson frontal d'un jaune un peu ferrugineux ; antennes et postscutellum d'un jaune ferrugineux, la face supérieure du funicule obscurcie ; deux petites taches au collare et deux assez grandes taches au propodéum ferrugineuses ; tergites 1–5 d'un jaune ferrugineux, le 1er ferrugineux à la base, le 2e dans toute sa moitié postérieure, le 4e à la base chez deux exemplaires ; 6e tergite ferrugineux, plus ou moins noirci ; sternites ferrugineux ; pattes ferrugineuses, plus ou moins teintées de jaune, les hanches 1 noires. Chez 5 ♀, de plus petite taille, l'abdomen est presque entièrement ferrugineux.

Je rappelle que j'avais précédemment cité 1 ♂ de Tripolitaine qui présentait des dessins en partie ferrugineux sur l'abdomen ; peut être devrait-il être associé aux ♀ ci-dessus.

Cerceris arenaria schulzi de Beaumont

El Adem, 1 ♂.

En l'absence de ♀, je ne puis certifier exacte la détermination de ce ♂, qui pourrait aussi être un *guichardi* de Beaumont ou une espèce voisine.

Cerceris quadricincta Panzer

Tolmeita-Tocra track, 1 ♂.

La coloration des pattes est assez particulière. Sur la première paire, les hanches et les trochanters sont noirs, les fémurs noirs, tachés de ferrugineux à l'extrémité, les tibias et les tarses d'un ferrugineux jaunâtre ; sur la 2e paire, l'extrémité des hanches et des trochanters est ferrugineuse, le reste comme sur les pattes 1 ; sur la 3e paire, les hanches sont noires, tachées de ferrugineux à l'extrémité, les trochanters et le tiers basal des fémurs sont jaunes ; le reste des fémurs, les tibias et les tarses sont ferrugineux avec des taches noirâtres. Le thorax est taché de jaune au collare seulement ; bandes jaunes des tergites 2 et 6 très larges, celles des tergites 3 et 4 très étroites.

Cerceris rutila Spinola

Brèga, iii, 1 ♀ ; Agedabia, 1 ♂, 1 ♀ ; Tolmeita-Tocra track, 1 ♀ ; Tolmeita, 1 ♀.

Cerceris spinipectus spinolica Schletterer

Bersis, 1 ♀.

Cerceris spinipectus teterrima Gribodo (n. statut)

Leptis Magna, 1 ♀.

Dans mon travail sur les *Cerceris* nord-africains (1952), j'avais indiqué que *Cerc. spinipectus spinolica* Schletterer, d'Egypte et certaines régions de Palestine et *Cerc. teterrima* Gribodo, de Tunisie et du Sud algérien, étaient morphologiquement très semblables et différaient surtout par la coloration de la ♀, en grande partie ferrugineuse chez la 1ère, noire chez la 2e ; j'avais été tenté d'admettre que le 2e était aussi une race géographique de *spinipectus* Smith, mais je n'avais pas franchi ce pas, en l'absence de documents sur la Tripolitaine et la Cyrénaïque. Les 2 ♀ citées dans ce travail, ainsi qu'une autre ♀ de Leptis Magna signalée précédemment (1956*a*) me permettent maintenant d'être affirmatif.

La ♀ de Bersis est nettement plus grande que celle de Leptis Magna (17 et 15 mm.), mais il peut s'agir d'une différence individuelle ; la conformation du clypéus est très semblable ; pour la sculpture de l'aire dorsale du propodéum, la ♀ de Tripolitaine se rapproche de celles de Tunisie, avec une striation cependant un peu moins dense, tandis que celle de Cyrénaïque est proche des ♀ égyptiennes.

En ce qui concerne la coloration, la ♀ de Cyrénaïque ressemble aux ♀ foncées d'Egypte, ayant la plus grande partie de la tête, le scutellum, le postscutellum, de petites taches au propodéum, l'abdomen et les pattes ferrugineux. La ♀ de Leptis Magna est en grande partie noire, mais cependant un peu moins foncée que celles d'Algérie et de Tunisie et également que l'individu précédemment cité de Leptis Magna. La tête est ferrugineuse ; il y a des zones d'un ferrugineux sombre sur le thorax et l'abdomen ; les pattes sont en grande partie ferrugineuses ; il y a donc tendance vers la coloration de *spinolica*.

Nous pouvons donc conclure que *teterrima* doit être considéré comme sous-espèce de *spinipectus* et que la limite entre *sp. spinolica* et *sp. teterrima* se place entre la Cyrénaïque et la Tripolitaine.

Genre ***GORYTES*** Latreille

Gorytes (Dienoplus) formosus Jurine

Sabratha, 1 ♀ ; Benghazi, 1 ♂.

Il semble exister en Afrique du nord plusieurs races de *G. formosus* et de l'espèce voisine *laevis* Latreille ; je n'ai pas vu suffisamment de matériel jusqu'à présent pour délimiter ces diverses formes. Au Maroc, j'ai rencontré des *formosus* très fortement tachés de rouge ; de l'Algérie méridionale, par contre, j'ai signalé 2 ♂ de coloration très foncée (1950*b*). La ♀ de Sabratha se rattache aussi à cette race foncée : la tête est noire, avec le bord antérieur du clypéus ferrugineux, d'étroites stries jaunâtres au bord interne des yeux et de petites taches ferrugineuses aux bords supérieur et postérieur des yeux ; sont rouges sur le thorax : 2 taches au collare, le mésonotum, le scutellum, le postscutellum et la partie supérieure des méso- et des métapleures ; propodéum entièrement noir ; abdomen avec les taches blanches habituelles sur les tergites 1, 2 et 5 ; pattes noires, avec la face antérieure des tibias 1 et 2 et une partie des tarses ferrugineuses. Le ♂ de Benghazi est coloré presque exactement comme cette ♀ (son clypéus est noir) et, par ce caractère, s'associe très bien à elle ; par contre, il a une sculpture, en particulier celle du propodéum, qui le rattacherait plutôt à *laevis* ; sa détermination est donc douteuse.

Gorytes (Dienoplus) quadrisignatus lugubris subsp. nov.

Wadi Derna, 1 ♀.

Comme je l'ai indiqué (1951, 1953), *G. ifranensis* Nadig, du Maroc, est une sous-espèce à coloration rouge plus étendue sur les pattes et des taches blanches plus développées, de *quadrisignatus* Palma, de l'Europe du SW.

La ♀ de Wadi Derna m'a paru morphologiquement identique à *quadrisignatus* ; sont en tous cas semblables : le clypéus, avec la petite échancrure médiane caractéristique de la lamelle antérieure, la forme de la tête et du propodéum, la sculpture de la tête, du thorax, du propodéum, des tergites abdominaux et de l'aire pygidiale, la spinulation des pattes. La coloration, par contre, à l'opposé d'*ifranensis*, est très foncée. Sont blancs : le bord antérieur (un peu ferrugineux au milieu) et les côtés du clypéus, d'étroites stries au bord interne des yeux, qui se terminent en pointe à mi-hauteur, la face inférieure des scapes, deux petites taches au collare, les tubercules huméraux, une petite tache au milieu du bord postérieur du scutellum, d'assez grandes taches latérales au 2e tergite, des traces sur le 5e tergite, des taches aux hanches 1 et 2 ; abdomen sans coloration ferrugineuse ; pattes noires avec la face antérieure des tibias 1 et 2, les tarses 1 et l'extrémité des tarses 2 ferrugineux ; face inférieure du funicule ferrugineux sombre.

C'est surtout l'absence de coloration rouge à la base de l'abdomen qui donne à ce spécimen un aspect bien différent de *quadrisignatus* ; l'identité de la morphologie et le fait que divers Sphécides sont mélaniques dans la région de la Libye autorisent cependant à admettre qu'il s'agit bien d'une race de *quadrisignatus*.

Genre ***AMMATOMUS*** Costa

Ammatomus mesostenus Handlirsch

Ras el Hilal, 1 ♂ ; Latrum, 1 ♂ ; Wadi Derna, 1 ♂, 1 ♀.

Genre ***STIZUS*** Latreille

Stizus pubescens Klug

Apollonia, 1 ♂ ; Ras el Hilal, 2 ♂.

Ces ♂ se rattachent à la race que l'on rencontre à Siwa et en Tripolitaine, caractérisée par les dessins d'un jaune ferrugineux.

Stizus ruficornis Fabricius

Bersis, 2 ♂, 3 ♀ ; Wadi Derna, 1 ♂.

Il y a un doute sur la sous-espèce à laquelle doivent se rattacher ces individus. Les dessins sont d'un jaune nettement ferrugineux, mais il est possible que, comme pour d'autres individus capturés le même jour, cette couleur soit dûe à l'action du KCN. Si les dessins de l'abdomen étaient primitivement jaunes, il s'agit de la subsp.

ruficornis ornatus Lepeletier ; si par contre la couleur ferrugineuse est naturelle, ces individus se rattachent à la sous-expèce décrite de Palestine par Bytinski Salz (1955) sous le nom de *ruficornis eremicus* ; cependant, l'examen du type de *Stizus strigatus* Mochi, d'Egypte (coll. Alfieri) m'a montré que c'était là un nom plus ancien pour cette race particulière de *ruficornis*.

Stizus ruficornis eremicus Bytinski Salz (1955) = *S. ruficornis strigatus* Mochi (1939) syn. nov.

Stizus fuliginosus Klug

Bersis, 4 ♀.

Stizus niloticus saharae Roth

Latrum, 1 ♂ ; Wadi Derna, 1 ♂.

J'espère pouvoir bientôt décrire la remarquable variation chromatique de *St. niloticus* Handlirsch, dont *saharae* Roth est une forme.

Stizus marthae cheops Morice

Tauorga, 1 ♂ ; 20 km. E. of El Agheila, 2 ♂.

Genre ***BEMBIX*** Fabricius

Bembix melanura Morawitz

Capuzzo, 1 ♂.

Il s'agit de cette espèce telle que Priesner (1958) l'a décrite d'Egypte.

Bembix flavescens kittyae de Beaumont

Leptis Magna, 2 ♀ ; Bersis, 6 ♀ ; Ras el Hilal, 1 ♂.

C'est l'espèce que j'avais signalée précédemment sous le nom de *turca* Dahlbom, mais qui, comme je l'ai noté depuis lors (1958) en est spécifiquement distincte. Les ♀ ont l'abdomen entièrement noir ; le ♂ présente une paire de petites taches blanchâtres sur les 3 premiers tergites.

Genre ***ASTATA*** Latreille

Astata (Dryudella) tricolor van der Linden

Ain el Gazala, 3 ♂.

Il s'agit de l'une des nombreuses formes que l'on peut rattacher à cette espèce.

Astata (Dryudella) bifasciata von Schulthess

Zuara, 1 ♀ ; Wadi Derna, 2 ♂.

Astata (s.s.) boops Schrank

El Abiar, 1 ♀ ; Capuzzo, 2 ♂

Genre *LARRA* Fabricius

Larra anathema Rossi

Rommel's Pool, 10 ♂, 3 ♀.

Genre *LIRIS* Fabricius

Liris atrata Spinola

Gasr Garabulli, 1 ♂, 1 ♀; Leptis Magna, 1 ♀; Brèga, iii?, 1 ♀; Agedabia, 1 ♀; Tolmeita-Tocra track, 1 ♀; Wadi Derna, 1 ♀; Baltet er Ramla, 1 ♀; Wadi el Mra, 1 ♂, 2 ♀; Capuzzo, 1 ♂, 2 ♀.

Liris nigricans Walker

Gasr Garabulli, 1 ♀; Ben Giauad, 1 ♂; Brèga, viii, 1 ♂, 2 ♀; Ras el Hilal, 1 ♂; Wadi Derna, 3 ♂, 1 ♀; Tmimi, 3 ♂, 1 ♀.

Liris nigra van der Linden

Bersis, 7 ♂; Barce, 2 ♂; Wadi Derna, 2 ♂, Tmimi, 1 ♀.

Liris cooperi de Beaumont

Ben Giauad, 1 ♂, 1 ♀; 20 km. E. of El Agheila, 1 ♂; Bersis, 1 ♂.

Genre *TACHYTES* Fabricius

Tachytes melanopyga Costa

Tauorga, 1 ♂; Wadi Derna, 2 ♂; Wadi el Mra, 1 ♀.

Genre *TACHYSPHEX* Kohl

Tachysphex (s.s.) panzeri van der Linden

Sabratha, 1 ♀; 2 km. E. of Wadi Caam, 1 ♂; Rommel's Pool, 1 ♀; Bersis, 1 ♀; Wadi Derna, 2 ♂, 2 ♀; Tmimi, 1 ♂, 1 ♀.

Les individus de Cyrénaïque se rattachent à la forme que j'ai nommée typique (1955*b*) ; le fémurs et les derniers segments abdominaux sont noirs ; les ♀ ont des bandes de pruinosité argentée aux 4 premiers tergites. La ♀ de Sabratha est semblable à celles que j'ai déjà citées de Tripolitaine. Quant au ♂ de Wadi Caam, il appartient à la forme que j'ai nommée saharienne.

Tachysphex (s.s.) gracilicornis Mercet

Homs, 1 ♀; Bersis, 2 ♂; Gasr Shahaden, 1 ♂; Cyrene, 1 ♂; Apollonia, 1 ♂, 1 ♀; Ras el Hilal, 1 ♂, 1 ♀; Latrun, 1 ♂.

La ♀ de Homs est accompagnée de sa proie : une larve de *Sphodromerus*.

Tachysphex (s.s.) brevipecten de Beaumont

Zuara, 1 ♀; Brèga, iii, 1 ♀.

Le clypéus et les 3 derniers segments abdominaux sont noirs; fémurs noirs, tachés de ferrugineux à l'apex seulement; tibias et tarses ferrugineux. J'avais signalé une ♀ de cette espèce provenant d'Istrie, mais, d'après les renseignements qui m'ont été communiqués, il s'agit probablement d'une erreur d'étiquetage et l'espèce serait seulement nord-africaine.

Tachysphex (s.s.) spp.

Sabratha, 1 ♀; Benghazi, 1 ♂; Tmimi, 1 ♀.

Ces individus appartiennent à 3 espèces différentes du groupe de *panzeri*; l'une des ♀ est probablement *gracilitarsis* Saunders.

Tachysphex (s.s.) luxuriosus Morice

Ben Giauad, 1 ♀; Baltet er Ramla, 1 ♀.

Tachysphex (s.s.) erythropus Spinola

Tauorga, 1 ♂; 20 km. E. of El Agheila, 1 ♂, 1 ♀; Brèga, viii, 1 ♂, 2 ♀; Barce, 9 ♂; Apollonia, 2 ♂; Ras el Hilal, 2 ♀; Latrun, 1 ♂; Wadi Derna, 2 ♂; Tmimi, 1 ♀; Wadi el Mra, 2 ♂.

Tachysphex (s.s.) costai Destefani

Tmimi, 1 ♂.

Tachysphex (s.s.) grandissimus Gussakovskij

Brèga, viii, 1 ♂; Baltet er Ramla, 1 ♂.

Tachysphex (s.s.) albocinctus Lucas

Leptis Magna, 2 ♂; Tmimi, 3 ♀; El Adem, 2 ♂.

Tachysphex (s.s.) schmiedeknechti Kohl

Zuara, 2 ♂; Giosc, 3 ♂; Leptis Magna, 1 ♂.

Tachysphex (s.s.) julliani Kohl

Tmimi, 1 ♂.

J'ai brièvement décrit du Maroc (1955*b*) deux types de ♂, qui se distinguent des individus typiques de l'Europe méridionale; l'une de ces formes se retrouve en Tripolitaine. L'individu capturé en Cyrénaïque ne se rattache ni à l'une ni à l'autre de ces deux formes, mais se rapproche beaucoup de ceux de l'Europe; l'armature génitale est semblable, de même que l'échancrure des fémurs 1 avec une lamelle bien développée; la pointe médiane du clypéus est plus allongée.

Tachysphex (s.s.) abjectus Kohl

Tmimi, 2 ♂.

Ces deux ♂ sont semblables, armature génitale comprise, à ceux que j'ai décrits d'Egypte (1947).

Tachysphex (s.s.) vestitus Kohl

Giosc, 1 ♀ ; Tmimi, 1 ♀.

Tachysphex (s.s.) adjunctus Kohl

Wadi Kuf, 6 ♂.

Tachysphex (s.s.) denisi de Beaumont

Tolmeita, 1 ♂.

Tachysphex (s.s.) nitidus Spinola

Garian hills, 1 ♀ ; Brèga, iii, 2 ♂, 3 ♀.

Les spécimens de Cyrénaïque appartiennent à la race de l'Afrique du NW., la ♀ de Tripolitaine à celle de l'Egypte.

Tachysphex (s.s.) nitidior de Beaumont

Tmimi, 1 ♂.

Tachysphex (s.s.) cabrerai Mercet

Wadi Derna, 6 ♂, 1 ♀.

Tachysphex (s.s.) yarrowi sp. nov.

Capuzzo, 1 ♀ (Type). Autres exemplaires : Algérie : Biskra 15.vi.11, 2 ♀ (Morice leg., Mus. Oxford) ; Egypte : Ben Yusef 15.iv.31, 1 ♀ (Mochi leg. coll. mea) ; Israël : Bat Jam 15 et 19.vi, 2 ♀ (Bytinski Salz leg., coll. Bytinski et coll. mea).

L'espèce fait partie du groupe de *speciosissimus* Morice ; c'est celle qui, dans mes notes de 1940, portait le No. 17.

♀. La taille varie entre 6 et 8 mm.; le plus grand et le plus petit spécimens sont ceux de Bat Jam ; le type mesure 7,6 mm., les exemplaires de Biskra 6,5 et 6,8 mm., celui d'Egypte 6,3 mm. Le type présente la coloration suivante. Tête et thorax noirs ; abdomen ferrugineux, avec les derniers segments un peu obscurcis et les larges dépressions des tergites décolorées, jaunâtres ; sont encore ferrugineux : le milieu des mandibules, l'extrémité de la face inférieure des scapes, le bord postérieur des tubercules huméraux, une grande partie des tibias et des tarses ; tegulae jaunâtres; ailes hyalines avec les nervures pâles. La plus grande ♀ d'Israël est de coloration très semblable. La ♀ d'Egypte est un peu plus foncée ; la petite ♀ d'Israël a l'abdomen et les tibias en grande partie rembrunis. Les 2 ♀ de Biskra, par contre, sont nettement plus claires ; sont ferrugineux chez elles : la plus grande partie des mandibules, toute la face inférieure des scapes, les tubercules huméraux, tout l'abdomen, une partie des fémurs 1, la plus grande partie des fémurs 2 et 3, les tibias et les tarses. Sur la tête et le thorax, la pilosité argentée couchée est assez dense ; elle cache la sculpture sur le bas de la face ; elle la cache presque complètement, chez les individus frais, sur les mésopleures et sur la face supérieure du propodéum, où elle est dirigée d'arrière en avant ; la région du tubercule ocellaire et du vertex ne montrent qu'une pilosité rare, courte et dressée ; tergite 1–5 avec une pruinosité argentée nette ; la pilosité argentée couchée est bien développée sur la face postérieure des fémurs 1 et 2.

La tête, vue de face, est large, avec le vertex nettement concave (Text-fig. 9) ; clypéus avec une aire apicale, brillante, montrant quelques points peu nettement marqués, aussi longue que l'aire basale ; la lamelle est faiblement arquée ; 2e article du funicule 2,5 fois aussi long que large, les suivants légèrement plus longs ; chez les ♀ d'Egypte et d'Israël, on remarque, se détachant du sommet de chaque callosité supra-antennaire, une fine carène brillante se dirigeant vers le bord interne des yeux (Text-fig. 9), visible sous la pilosité ; ces carènes, que l'on voit chez quelques autres espèces, sont moins développées chez les ♀ de Libye et de Biskra ; la ponctuation de la face est très fine et dense, mais cependant avec des espaces brillants entre les points ; sur le vertex, la ponctuation est très fine aussi, mais avec des espaces aussi grands que les points ; l'impression transversale du vertex, assez profonde et assez large, est reliée au tubercule ocellaire par une courte impression longitudinale ; la distance interoculaire est un peu plus courte que la longueur des articles 2 + 3 du funicule ; tempes très peu développées. Mésonotum très brillant, avec une ponctuation fine et espacée, les espaces plus grands que les points ; scutellum avec une sculpture semblable, les points un peu plus gros ; mésopleures brillantes avec une ponctuation assez dense dans le haut, devenant plus espacée dans le bas ; mésosternum très brillant, avec des points très espacés ; face supérieure du propodéum peu brillante, avec une striation longitudinale fine et très irrégulière ; faces latérales avec une striation beaucoup plus nette, qui disparaît cependant en partie à la base chez une des ♀ de Biskra. Tergites microsculptés, pas très brillants, leur dépression terminale large, celle du 5e sans soies dressées à

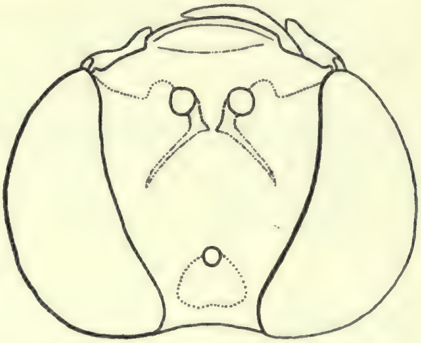


FIG. 9. *Tachysphex yarrowi* sp. nov. ♀, tête de face.

la base ; aire pygidiale en triangle très allongé, un peu bombée, brillante, avec une légère microsculpture dans sa partie basale et quelques points isolés. Pattes élancées, avec des épines pâles assez longues ; tibias 1 avec une seule longue épine à l'extrémité ; peigne formé d'épines longues et fines, au nombre de 6–7 sur le métatarse ; sur la face dorsale du métatarse 2, il y a généralement 2, parfois 3 épines outre celle qui est à l'apex ; sur le métatarse 3, il n'y en a pas, ou il en existe une seule, petite. Cellule radiale relativement peu tronquée à l'extrémité.

Malgré une certaine variation, il me parait certain que ces divers individus appartiennent à la même espèce. *T. yarrowi* est voisin de *speciosissimus* Morice, mais s'en distingue facilement par sa taille plus faible, l'aire apicale du clypéus un peu plus grande, la forme différente de l'impression du vertex, la ponctuation beaucoup moins dense de la face, du vertex et des mésopleures, l'aire pygidiale plus étroite et plus brillante, les pattes moins épineuses, la cellule radiale moins tronquée ; elle se distingue de *sulcidorsum* de Beaumont par la structure particulière du mésonotum chez ce dernier, de *fasciatus* Morice par la coloration, la sculpture du propodéum, le clypéus, etc. Je connais encore deux espèces nord-africaines inédites de ce groupe ; l'une (No. 18 de mes notes de 1940) d'Egypte a la tête et le thorax entièrement mats avec une pilosité d'aspect laineux ; l'autre, dont je possède 1 ♀ de Biskra et 1 ♀ de Midelt, est la plus proche de *yarrowi*, mais elle a la pilosité argentée moins développée, les mésopleures mates, les faces latérales du propodéum non striées.

Je dédie cette espèce à M. I. H. H. Yarrow, entomologiste au British Museum, en hommage à ses beaux travaux sur les Hyménoptères et en reconnaissance des services qu'il m'a si souvent rendus.

Tachysphex (s.s.) imperfectus de Beaumont

Ain el Auenia, 1 ♀ ; Gasr Garabulli, 1 ♀.

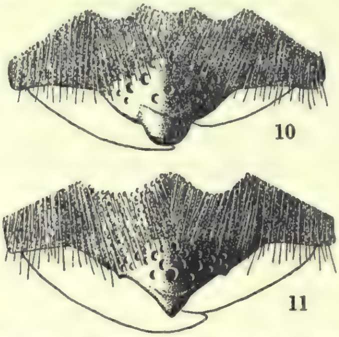
Les pattes 1 ont de petites zones ferrugineuses ; les pattes 2 et 3 sont noires ; clypéus et les 5–6 premiers articles des antennes ferrugineux.

Tachysphex (Holotachysphex) pentapolitanus sp. nov.

Barce, 1 ♀.

♀. 9 mm. Corps noir, avec les parties suivantes ferrugineuses : le milieu des mandibules, une petite tache à l'extrémité de tous les tibias et des premiers articles des tarses, les derniers articles des tarses ; le bord postérieur des tergites abdominaux et les côtés rabattus du premier tergite sont d'un ferrugineux jaunâtre. La pilosité argentée de la face et du clypéus est relativement peu développée et ne cache pas les téguments ; sur le thorax et le propodéum, la pilosité, blanche, est également peu développée ; des bandes de pruinosité argentée, pas très accusées, sur les 4 premiers tergites.

Mandibules présentant la structure caractéristique pour le sous-genre ; la partie médiane du clypéus, saillante, très brillante, nettement ponctuée, est moins pointue en avant que chez *holognathus* Morice (Text-figs. 10 et 11) ; 2e article du funicule 2 fois aussi long que large, le 3e à peine plus long ; des callosités brillantes très nettes au dessus des insertions antennaires ; toute la ponctuation du corps est nettement plus fine que chez *holognathus*, mais plus forte qu'elle ne l'est généralement chez les *Tachysphex* ; la ponctuation de la face est très nette et pas très dense ; dans la partie médiane, il y a des espaces nets, très brillants, entre les points ; la protubérance ocellaire est lisse et brillante de chaque côté en avant des ocelles postérieurs, finement ponctuée dans sa partie médiane déprimée ; l'impression du vertex est en forme de ligne transversale, droite, étroite, nettement enfoncée ; vertex horizontal, à ponctuation très dense, sans espaces entre les points; la distance interoculaire égale presque la longueur des 3 premiers articles du funicule réunis. Mésonotum brillant, avec une ponctuation semblable à celle du milieu de la face, les espaces par endroits aussi grands que les points ; sur le scutellum, les espaces sont nettement plus grands que les points ; mésopleures à ponctuation très dense ; propodéum densément réticulé. Tergites nettement ponctués, la ponctuation devenant de plus en plus espacée et plus fine en allant du 1er au 5e ; carènes latérales des tergites 1 et 2 comme chez *holognathus* ; aire pygidiale en triangle très allongé, brillante, avec quelques points, indistinctement limitée ; 2e sternite à ponctuation assez dense, sur un fond microsculpté ; les suivants à ponctuation très espacée. Pattes comme chez les autres espèces du sous-genre, peu épineuses, le métatarse 1 sans peigne. Cellule radiale assez largement tronquée à l'extrémité.



Figs. 10–11. *Tachysphex*, clypéus ♀. (10) *T. pentapolitanus* sp. nov. (11) *T. holognathus* Morice.

Cet individu unique se distingue suffisamment de *holognathus* par ses pattes plus foncées, sa pilosité moins développée, sa sculpture beaucoup plus fine, la forme de son clypéus pour que l'on base sur lui une espèce distincte ; *prosopigastroides* Gussakovskij, d'après la figure, doit avoir un clypéus avec une pointe beaucoup plus développée.

Genre ***PROSOPIGASTRA*** Costa

Prosopigastra (s.s.) punctatissima africana de Beaumont

Bersis, 1 ♀; Tmimi, 1 ♀.

Prosopigastra (s.s.) handlirschi Morice

Leptis Magna, 1 ♂; Brèga, iii, 8 ♂, 6 ♀; Benghazi, 1 ♂.

Genre *PARAPIAGETIA* Kohl

Ce genre n'a été que peu étudié jusqu'à présent, ce qui tient sans doute au fait que la plupart des espèces sont rares. Ne sachant si j'aurai l'occasion d'y revenir une fois, je profite de l'occasion qui m'est donnée ici pour consigner quelques observations. *Parapiagetia* est voisin de *Tachysphex*, mais s'en distingue par divers caractères.

Chez *P.*, les mandibules sont courbées en S ; le bord antérieur du clypéus, chez *P.* est muni d'un appendice ou d'une dent médiane ou de plusieurs dents, caractère qui n'apparaît que rarement chez *T.*; les ocelles postérieurs, assez distinctement limités chez *T.*, sont peu nets chez *P.*; le vertex, est toujours large chez *P.*, avec une impression angulaire nette ; la face dorsale du propodéum est striée transversalement chez *P.*, ce qui ne semble jamais être le cas chez *T.*; le premier segment abdominal, chez *P.*, est toujours plus ou moins allongé, distinctement rétréci à la base, avec les côtés rabattus des tergites très proches l'un de l'autre sur la face ventrale ; tout l'abdomen peut d'ailleurs être fortement allongé ; chez *T.*, les articles 1–4 des tarses sont relativement longs, le 5e relativement court ; chez *P.*, le 5e article est relativement long ; les métatarses 2 et 3 sont courts et portent, chez la ♀, 3 épines sur leur face dorsale ; chez *T.*, le peigne est formé d'épines en général nombreuses, longues (nulles chez *Holotachysphex*) ; chez *P.*, le peigne est formé d'épines courtes ; les fémurs antérieurs du ♂, qui sont presque toujours échancrés à la base chez *T.*, ne le sont pas chez *P.*

Malgré l'aspect très varié des espèces qui le constituent, ce genre est probablement très naturel. On peut y distinguer deux groupes principaux, le 2e pouvant être divisé en deux sous-groupes.

1er groupe

Abdomen pas particulièrement allongé ; ocelles postérieurs très indistincts, non rebordés en arrière ; aire pygidiale de la ♀ garnie de soies couchées isolées ; 8e sternite du ♂ arrondi à l'extrémité ; pattes courtes, avec les métatarses 2 et 3 arqués et les griffes du ♂ fortement asymétriques ; cellule radiale longue ; nervulus peu antéfurcal ; tibias ferrugineux ; abdomen souvent en partie ferrugineux. C'est à ce groupe qu'appartiennent *rufescens* Gussakovskij, *saharica* de Beaumont, probablement *capitalis* Saunders (décrit comme *Tachysphex*) et les espèces éthiopiennes du genre ; je connais au moins deux espèces inédites de l'Afrique du nord.

2e groupe

Ocelles postérieurs finement rebordés en arrière ; aire pygidiale de la ♀ glabre ; 8e sternite du ♂ échancré à l'extrémité ; pattes plus grêles, avec les métatarses 2 et 3 peu arqués et les griffes du ♂ à peu près symétriques ; cellule radiale plus ou moins fortement tronquée ; nervulus nettement antéfurcal ; tibias souvent jaunes ; abdomen noir.

1er sous-groupe

Espèces à abdomen très allongé ; les ♀ ont le clypéus quadridenté : *odontosoma* Kohl (type du genre), *mongolica* Morawitz et *zorah* de Beaumont.

2e sous-groupe

Espèces à abdomen pas particulièrement allongé qui, de ce fait, ont été décrites comme *Tachysphex* ; le clypéus de la ♀ est muni d'un appendice médian de forme variable : *genicularis* Morawitz, *integer* Kohl et *piagetioides* Saunders ; je connais des espèces inédites.

Gussakovskij (1952) a créé le genre *Psammosphex* pour les *Parapiagetia* à abdomen relativement court, soit celles de mon 1er groupe et de mon 2e sous-groupe ; il a donné comme type *genicularis* Morawitz ; c'est donc au 2e sous-groupe que devrait s'appliquer le nom de *Psammosphex* ; comme je l'ai déjà laissé entendre (1955*a*), une coupure, même subgénérique, ne me parait cependant pas justifiée ; elle le serait davantage pour distinguer les deux groupes principaux.

Parapiagetia odontosoma Kohl

2 km. E. of Wadi Caam, 1 ♀.

Parapiagetia zorah de Beaumont

2 km. E. of Wadi Caam, 1 ♀.

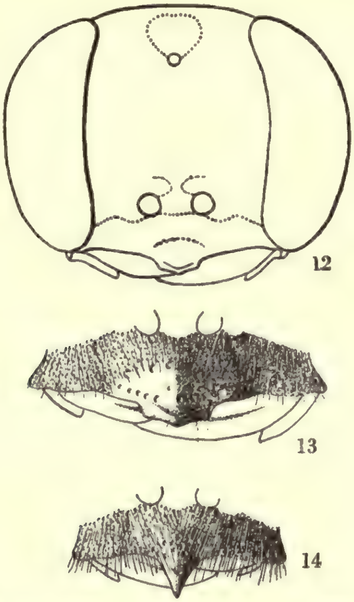
Parapiagetia piagetioides Saunders

Brèga, iii, 1 ♂, 1 ♀ ; Wadi Derna, 1 ♂.

Le transfert de cette espèce du genre *Tachysphex* au genre *Parapiagetia* lui confère une dénomination plutôt grotesque!

Grâce à l'amabilité de M. E. Taylor, j'ai pu comparer la ♀ de Brèga au seul exemplaire connu jusqu'à présent de cette espèce, la ♀ type, originaire de Biskra (coll. Morice, MS. Oxford) ; mis à part quelques minimes détails de sculpture, ces deux insectes sont identiques. Comme il existe en Afrique du nord des espèces voisines, inédites, il est nécessaire de préciser sur certains points la description de Saunders. Je donne (Text-fig. 13) une figure du clypéus, toujours caractéristique pour les ♀ des espèces de ce genre, exécutée d'après l'exemplaire de Cyrénaïque ; chez le type, les angles latéraux de la partie médiane sont un peu moins saillants et la ponctuation est un peu plus fine ; les callosités supra-antennaires sont très saillantes et se touchent presque au milieu (Text-fig. 12) ; face avec une ligne enfoncée atteignant l'ocelle antérieur, avec une ponctuation très fine, les espaces beaucoup plus grands que les points ; vertex à ponctuation semblable. La ponctuation du mésonotum est plus forte que celle de la tête, beaucoup plus espacée ; les mésopleures sont obliquement et irrégulièrement striées, mais leur partie supérieure est brillante, à peine striée ; métatarses 2 et 3 portant 3 fortes épines sur leur arête supérieure.

♂. L'individu de Wadi Derna a une sculpture des différentes parties du corps très semblable à la ♀ ; sur la face, cependant, la ponctuation est un peu plus dense et, corrélativement, la pilosité argentée est un peu plus abondante ; le clypéus présente une partie médiane saillante en une pointe très aiguë (Text-fig. 14) ; les articles 2 et 3 du funicule, sont moins de 2 fois aussi longs que larges ; le 7e tergite est très brillant, finement ponctué, un peu concave ; métatarse antérieur avec un peigne formé d'épines moins développées que chez la ♀, mais cependant plus longues que le diamètre de l'article ; tibias en partie rembrunis. Le ♂ de Brèga est de morphologie générale très semblable, mais sa sculpture est moins dense ; les mésopleures sont ponctuées, les espaces un peu plus grands que les points, avec quelques indications de stries ; la striation du propodéum est moins dense ; les tibias ne sont clairs qu'à la base et à l'apex. Peut être ce ♂ appartient-il à une espèce voisine. Dans ce groupe, le clypéus varie beaucoup plus d'une espèce à l'autre chez les ♀ que chez les ♂ ; l'association des sexes doit se faire en étudiant en détail la sculpture des diverses parties du corps.



FIGS. 12–14. *Parapiagetia piagetioides* Saunders. (12) Tête ♀ de face. (13) Clypéus ♀. (14) Clypéus ♂.

Genre ***GASTROSERICUS*** Spinola

Gastrosericus waltlii Spinola

Leptis Magna, 1 ♀ ; Tauorga, 1 ♀.

Ces 2 ♀ de Tripolitaine, comme les autres individus récoltés précédemment dans cette région, ont l'abdomen noir.

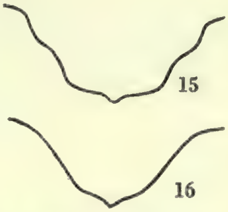
Gastrosericus drewseni Dahlbom

Baltet er Ramla 2 ♂ ; Tmimi, 3 ♂, 2 ♀.

J'ai examiné en 1947 les types de cette espèce, provenant de la collection Hedenborg et déposés au Muséum de Stockholm ; il y a 2 ♀ et 1 ♂, étiquetés " Egypt Hbg 35 "' j'ai désigné l'une des ♀ comme lectotype. Il s'agit d'une espèce extrêmement voisine de *waltlii* ; elle s'en distingue par l'abdomen entièrement rouge et par le bord antérieur du clypéus de la ♀, qui forme au milieu un angle beaucoup plus accusé (Text-figs. 15 et 16) ; les tibias sont entièrement clairs chez les deux sexes. Des individus semblables se trouvent au Negev (Bytinski Salz leg.) ; les ♂ ont parfois le 4e tergite en partie obscurci. Les 2 ♂ de Baltet er Ramla, en très mauvais état, sont de détermination douteuse.

Gastrosericus moricei Saunders

Tripoli, 4 ♀.



FIGS. 15–16. *Gastrosericus*, clypéus ♀ (la pilosité arrachée). (15) *G. waltlii* Spinola. (16) *G. drewseni* Dahlbom.

Genre ***PALARUS*** Latreille

Palarus saundersi Morice

Tigi, 1 ♀.

Genre ***LAPHYRAGOGUS*** Kohl

Laphyragogus pectinatus de Beaumont (1959*b*).

Tigi, 1 ♀.

Genre ***MISCOPHUS*** Jurine

Miscophus sericeus Radoszkovski

Leptis Magna, 3 ♀ ; Capuzzo, 3 ♀.

Miscophus ctenopus Kohl

2 km. E. of Wadi Caam, 1 ♀ ; Capuzzo, 1 ♀.

Miscophus tagiurae de Andrade

Leptis Magna, 2 ♂, 1 ♀.
Individus comparés à un paratype ♀ (British Museum).

Miscophus alfierii Honoré

2 km. E. of Wadi Caam, 1 ♂ ; Buerat, 1 ♂ ; Brèga, iii, 9 ♂, 9 ♀ ; 10 km. S. of Ghemines, 1 ♀ ; Benghazi, 2 ♂, 4 ♀ ; Tolmeita-Tocra track, 1 ♀ ; Benina plain, 1 ♂ ; Capuzzo, 10 ♀.

J'ai vérifié l'identité de ces spécimens en les comparant à une ♀ d'Egypte, déterminée par de Andrade (coll. Verhoeff) ; chez les ♀, les tibias 3 sont entièrement ferruginaux, ceux des deux premières paires le sont en grande partie.

Miscophus sirius de Andrade

Sabratha, 1 ♀ ; Leptis Magna, 1 ♀.

La ♀ de Sabratha est très semblable à un paratype de Cussabat (British Museum) ; la ♀ de Leptis Magna diffère un peu, mais semble appartenir à la même espèce.

Miscophus spp.

Giosc, 1 ♀ ; Leptis Magna, 1 ♀ ; Bersis, 1 ♂ ; Wadi el Mra, 1 ♀.

Ces individus appartiennent à 4 espèces différentes ; peut-être certains d'entre eux pourront ils être déterminés à l'aide d'un travail posthume du regretté N.F. de Andrade, qui doit encore paraître.

Genre ***SOLIERELLA*** Spinola

Solierella babaulti de Beaumont

Leptis Magna, 3 ♂, 3 ♀.

J'avais noté que, chez cette espèce, les tergites sont assez largement décolorés à l' extrémité ; ainsi sont colorés 2 ♂ et 2 ♀ des nouvelles récoltes de M. Guichard ; chez 1 ♂ et 1 ♀ cependant, le premier tergite est presque entièrement ferrugineux et le 2e l'est en grande partie.

Genre ***TRYPOXYLON*** Latreille

Trypoxylon scutatum Chevrier

Barce, 1 ♂ ; Wadi Derna, 1 ♂ ; Tmimi, 16 ♂, 4 ♀.

Trypoxylon kolazyi Kohl

Ras el Hilal, 1 ♂, 8 ♀.

C'est la première fois que l'espèce est signalée de l'Afrique du nord ; j'ai examiné également des spécimens de Tanger.

Genre ***DIODONTUS*** Curtis

Diodontus oraniensis Lepeletier

Benghazi, 1 ♂, 1 ♀.

Une révision des *Diodontus* méditerranéens serait nécessaire, car il existe bien des espèces inédites, qui ne figurent pas dans la petite monographie de Kohl (1901). Une espèce nord-africaine très répandue est *oraniensis* Lepeletier (= *punicus* André = *moricei* Kohl = *gracilicornis* Saunders), que l'on rencontre des Canaries jusqu'en Palestine ; elle a été bien caractérisée par Kohl sous le nom de *moricei*.

Le ♂ a, comme *minutus* Fabricius (que je ne connais pas de l'Afrique du nord) et *friesei* Kohl les mandibules et les tubercules huméraux jaunes, mais les métatarses 1 et 2 ne sont pas courbés, les funicules sont noirs avec les articles plus allongés, la face est très mate, avec une ponctuation peu visible dans la sculpture de base. La ♀ se distingue de celles de *minutus* et de *friesei* par la sculpture de la tête et du mésonotum, les articles du funicule plus allongés, de *friesei* par la partie médiane du clypéus plus large. Les mandibules sont souvent un peu noirâtres à la base et, chez la ♀, elles sont parfois en grande partie ferrugineuses et non jaunes. Les tarses sont plus ou moins foncés.

Diodontus longicornis sp. nov.

Benghazi, 2 ♂, 2 ♀. Autres exemplaires : Algérie : Biskra 20.iv–2.v.49, 16 ♂, 1 ♀ (A. Giordani Soika leg.) ; Biskra, iii, 31, 2 ♂, 1 ♀ (R. Meyer leg.) ; Egypte : Le Caire 3.iv.38, 7 ♂ (de Beaumont leg.) ; Dekhela 19.iii.35, 1 ♀ (A. Mochi leg.) ; Kingi Mariout, 14.iii.35, 1 ♀ (W. Wittmer leg.) ; tous ces exemplaires de Biskra et d'Egypte : coll. mea. Type ♀ et allotype ♂, Biskra 20.iv.–2.v.

Cette espèce est voisine, par ses caractères généraux, d'*oraniensis* Lepeletier et elle a été trouvée, à Biskra par M. Giordani Soika et à Benghasi par M. Guichard, dans les mêmes stations que cette dernière ; elle semble cependant moins répandue. Lorsque l'on a les deux espèces sous les yeux, les différences, très constantes, qui portent surtout sur la sculpture, apparaissent nettement ; il sera probablement plus difficile de reconnaître *longicornis* sans matérial de comparaison.

♀. 4,5–5 mm. Mandibules noirâtres à la base, puis jaunes ou d'un jaune ferrugineux, la pointe ferrugineuse ; tubercules huméraux jaune clair ; tibias et tarses ferrugineux, plus ou moins variés de noirâtre et de jaune (cette dernière couleur surtout à la face antérieure des tibias 1) ; la nervulation est plus claire que chez *oraniensis*, de la couleur de celle de *minutus* Fabricius ; tout le bord antérieur du stigma est plus clair que le reste de sa surface, caractère qui apparait nettement en examinant l'aile par transparence ; chez *oraniensis*, la différence entre les deux parties du stigma est beaucoup moins marquée ; aire pygidiale plus ou moins ferrugineuse.

Clypéus très brillant, montrant le long de son bord antérieur et près de la base quelques points d'où sortent de longues soies, comme chez les espèces voisines ; les pointes latérales du clypéus sont nettement plus éloignées l'une de l'autre que chacune d'elles de l'oeil voisin ; toute la tête avec une réticulation de base un peu moins accusée que chez *oraniensis* ; la ponctuation du haut de la face et du vertex est très fine et espacée, mais nette, plus fine et un peu plus espacée que chez *minutus*, plus visible et beaucoup plus espacée que chez *oraniensis* ; il n'y a pas ou presque pas de ligne médiane sur la face, tandis qu'elle existe, souvent assez bien marquée, chez *oraniensis* ; bourrelets, au bord supérieur des yeux, moins marqués que chez *minutus*, à peu près comme chez *oraniensis* ; POL à peine inférieur à OOL ; les articles du funicule sont relativement longs ; le 2e et le 3e sont presque 2 fois plus longs que larges ; chez *oraniensis*, ils sont légèrement plus longs, chez *minutus* nettement plus courts. Dos du thorax microsculpté comme la tête, avec des points aussi fins, isolés, plus fins et beaucoup plus espacés que chez *minutus*, plus espacés que chez *oraniensis* ; chez ce dernier, le mésonotum est beaucoup moins mat que la tête, tandis que chez *longicornis* la différence est peu marquée ; partie supérieure des mésopleures entièrement réticulée ; partie inférieure très finement striée, cette striation pouvant même s'effacer en grande partie ; propodéum brillant, entièrement réticulé sur sa face supérieure et strié sur ses faces latérales ; premier tergite brillant, sans microsculpture visible à × 70, avec une ponctuation très fine et espacée, un peu plus espacée que chez *oraniensis* ; les tergites suivants à ponctuation plus dense et microsculpture de plus en plus visible ; aire pygidiale mate, avec des points espacés, plus étroite que chez *oraniensis*. Le métatarse 1 ressemble à celui d'*oraniensis*, c'est à dire qu'il est plus allongé que celui de *minutus* et qu'il montre sur son arête externe un peigne formé d'épines pâles et transparentes, plus fines, plus courtes et moins visibles que l'épine apicale.

♂. 3–4,5 mm. Mandibules, sauf l'extrême base qui est noirâtre et la pointe, qui est ferrugineuse, jaune clair ; tubercules huméraux et la plus grande partie des tibias et des tarses jaunes ; extrémité de l'abdomen ferugineuse ; nervulation et stigma comme chez la ♀ ; funicule entièrement noir.

De façon générale, la sculpture est semblable à celle de la ♀, mais la microsculpture est, comme d'habitude, un peu plus développée, rendant les téguments de la tête et du dos du thorax plus mats ; la ponctuation est souvent un peu plus dense. Antennes longues ; les articles du funicule sont à peu près 1,5 fois aussi longs que larges, un peu plus courts que chez *oraniensis*, mais plus longs que chez *minutus* ; ils ne sont pas obliquement tronqués à l'extrémité comme chez cette espèce ; les métatarses 1 et 2 sont droits, comme chez *oraniensis* et ne montrent pas trace de la déformation que l'on voit chez *minutus* ou *friesei* ; les articles suivants, de même que tous les articles des tarses 3, sont beaucoup plus grêles que chez *minutus* ; ainsi, le 2e article des tarses 2 est à peu près 3 fois aussi long que large, le 2e article des tarses 3 à peu près 4 fois aussi long que large ; chez *oraniensis*, les articles des tarses sont encore un peu plus allongés.

Diodontus friesei Kohl

Benghazi, 5 ♀.

Genre ***PASSALOECUS*** Shuckard

Passaloecus sp.

Cyrene, 1 ♀.

Cette ♀ appartient au groupe de *turionum s.s.*, mais ne semble se rattacher à aucune des espèces européennes reconnues par Ribaut ; elle est caractérisée entre autres par le ponctuation espacée du vertex.

Genre ***CROSSOCERUS*** Lepeletier et Brullé

Crossocerus elongatulus van der Linden

Schiaschiara, 12 ♂.

Comme ceux que j'ai signalés du Maroc, ces ♂ ont des dessins jaunes assez étendus et la pilosité de la face inférieure des pattes 1 et du sternum est bien développée.

Crossocerus acanthophorus Kohl

Ras el Hilal, 1 ♂.
Voir : de Beaumont 1959*a*

Genre ***LINDENIUS*** Lepeletier et Brullé

Lindenius hamilcar Kohl

Garian hills, 9 ♂, 2 ♀.

Lindenius difficillimus Kohl

Benghazi, 1 ♀.

Cette espèce a été basée sur une seule ♀ d'Egypte, sur laquelle j'ai donné (1956*b*) quelques renseignements ; le spécimen de Cyrénaïque parait très voisin ; sa taille est un peu plus grande : 5 mm.

Genre ***OXYBELUS*** Latreille

Oxybelus lamellatus Olivier

Zuara, 1 ♂ ; Schiaschiara, 1 ♂ ; Brèga, viii, 1 ♀ ; Rommel's Pool, 1 ♂, 1 ♀ ; Wadi Derna, 2 ♂.

Oxybelus mucronatus moricei de Beaumont

Schiaschiara, 3 ♂.

Oxybelus dissectus Dahlbom

Leptis Magna, 3 ♀.

Ces 3 ♀ ne se rattachent pas du tout à la race foncée *tingitanus* que j'ai décrite du Maroc et qui se retrouve en Algérie ; elles ont les dessins blancs très développés, comme chez les races *eburneofasciatus* Dahlbom ou *elegans* Mocsary ; sont en effet blancs chez ces individus : tout le collare et les tubercules huméraux, 2 taches au scutellum, les lamelles du postscutellum et une partie de l'espace entre elles, les bords latéro-postérieurs du scutellum et du postscutellum, 2 grandes taches au ler tergite, des bandes étroitement interrompues sur les tergites 2 et 3, continues sur 4 et 5, d'assez grandes taches aux fémurs 1 et 2, une grande partie des tibias et tarses 1, de grandes taches à la base des tibias 2 et 3.

Oxybelus subspinosus Klug

Benghazi, 1 ♂ ; Rommel's Pool, 1 ♀ ; Bersis, 2 ♂ ; Barce, 3 ♂.

La ♀ a des dessins blancs bien développés, comprenant entre autres 2 taches au scutellum, les lamelles du postscutellum et l'espace entre elles ; le dessin de l'abdomen est semblable à celui des *dissectus* décrits ci-dessus ; c'est l'individu le plus clair que je connaisse de l'Afrique du nord.

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A REVIEW OF THE AFRICAN SPECIES OF THE GENUS *CHEUMATOPSYCHE* (TRICHOPTERA, HYDROPSYCHIDAE),

WITH SPECIAL REFERENCE TO THOSE OF SOUTHERN AFRICA

By D. E. KIMMINS

THE genus *Cheumatopsyche* already includes nearly twenty described species from the African mainland (south of the Mediterranean region) and the recognition of some of them has presented considerable difficulty. Two of the species have been described from the female sex only and have been excluded from this review. Of the others, figures of the male genitalia were originally given for most species, but in some cases these figures (although adequate at the time of publication) are not now sufficiently detailed for certain recognition of the species. Dr. Barnard, whose 1934 paper is the basis of modern work on the Trichoptera of Southern Africa, figured the South African species, but unfortunately these figures were not always drawn from the specimen subsequently labelled TYPE. This has led to some confusion, especially in the case of *C. lateralis* (Barnard), since his type-series has proved to contain two distinct species. Barnard himself, in his 1940 paper, placed his *lateralis* as a synonym of *C. maculata* (Mosely) and the specimen labelled TYPE confirms this. His figures are however from examples which I consider to be conspecific with *C. afra* (Mosely) and this has caused errors in identification by later workers.

I was led to investigate the taxonomy of the South African species by a request from Dr. Marjorie Scott, of the University of Cape Town. She had found difficulty in identifying her material with the aid of Barnard's paper and offered to send me material for verification. This material has proved both interesting and at the same time rather baffling. On the basis of this and other material in the British Museum certain conclusions have been reached but it would be optimistic to assume that finality has been attained. Some species have been reduced to synonymy, because at present it has not been possible to find satisfactory characters whereby to separate them. This applies particularly to the forms which I am grouping together under the name *C. afra* (Mosely). At first it seemed that there might be three or four species involved but further investigation revealed intermediate forms. They have all therefore been treated as a rather variable species. By so doing, a name is available by which one can refer to them, with the possibility that further field work, particularly on the larval forms, may provide evidence that *C. afra* is in fact an aggregate species.

When the status of the males is so uncertain, the identification of the females becomes even more difficult. Denning (1943), when dealing with the North American Hydropsychidae, has shown that specific characters can be found in the female genitalia, in the shape of the eighth segment and particularly in the form of the " clasper-receptacle " and " clasper-groove " on the ninth tergite. I am figuring these structures for a number of forms, but in the absence of pairs taken in copula, the association of females with males can only be provisional. In addition to the above structures, it has been noticed that some forms have a curious reticulated area (sometimes small) on the fourth pleurite of the female. It is present in the females associated with *triangularis* and *thomasseti* and generally absent in the possibly aggregate species *afra* (Mosely).

Field work may later provide a series of adults of both sexes, with evidence that they have been bred from larvae which can be separated on structural or ecological grounds. The time will then be ripe to re-open the study of the adults and to search for characters by which they may be separated.

In this paper I have attempted to provide a key to the males of the African species of *Cheumatopsyche*, and to figure the male genitalia of a number of the species. Figures are also given of a few females, but here again the assistance of the field worker is needed to provide definitely associated pairs.

In conclusion I should like to thank Dr. Marjorie Scott for providing me with this material for study, and Dr. A. J. Hesse, of the South African Museum, for his kindness in offering me on loan the types of *Cheumatopsyche lateralis* (Barnard) and *C. zuluensis* (Barnard), and for allowing me to make preparations of the male genitalia.

KEY TO MALES OF AFRICAN SPECIES OF *Cheumatopsyche*

(♂ of *C. bimaculata* and *C. meruana* unknown)

1. Tenth segment produced at centre of apical margin, or with lateral lobes not extending beyond median lobe 2
– Tenth segment with lateral lobes enclosing a rounded, triangular or quadrate excision, central lobe (if present) not as long as lateral lobes 4
2. Lateral lobes forming short, upcurved hooks . . . . . . *lesnei* (Mosely) (= *uncata* Kimmins)
– Lateral lobes bluntly rounded 3
3 Median lobe broadly triangular (Text-fig. 2) . . . . . *triangularis* (Ulmer)
– Median lobe narrower, more parallel-sided (Text-fig. 5) . . . . *trifida* (Mosely)
4. Median excision short and narrow, clearly narrower than the rounded lateral lobes *copiosa* Kimmins
– Median excision generally much wider than lateral lobes 5
5. Lateral lobes forming slender fingers 6
– Lateral lobes not forming slender fingers 7
6. Finger-like processes of tenth segment slightly downcurved (Text-fig. 7). Side-pieces of ninth segment strong, situated in lower half . . . . *digitata* (Mosely)
– Finger-like processes of tenth segment in side-view straight. Side-pieces less developed, situated about midway . . . . *leloupi* Jacquemart
7. Lateral lobes with a small setose, apical branch on inner surface (Text-figs. 12–15). Apical lobes of aedeagus outspread, with a wide excision between them (Text-fig. 14) . . . . *maculata* (Mosely) (= *lateralis* (Barnard))

– Lateral lobes without any apical branch. Apical lobes of aedeagus not widely outspread, nor with so wide an excision between them 8
8. Lateral lobes with a V-shaped excision between them (Ulmer's figure) . *plutonis* (Banks)
– Excision other than above 9
9. Lateral lobes approximated apically in dorsal view 10
– Lateral lobes widely spread 12
10. Lateral lobes enclosing a transverse, rounded excision, bent upwards in side-view *diminuta* (Walker) Ulmer
— Lateral lobes enclosing a triangular excision (Text-fig. 21) 11
11. Lateral lobes stout apically, toothed internally . . . . . . *lobata* Marlier
— Lateral lobes not so stout apically nor toothed internally . . . *obscurata* (Ulmer)
12. Terminal segment of clasper in ventral view straight, moderately stout, scarcely tapered 13
— Terminal segment of clasper in ventral view more or less angled or sinuous, moderately tapered . . . . *afra* (Mosely)
13. Lateral lobes of tenth segment in dorsal view clavate apically (Text-figs. 29, 33) 14
— Lateral lobes of tenth segment in dorsal view slightly incurved, acute or rounded apically (Text-fig. 25) . . . . *falcifera* (Ulmer) (= *zuluensis* (Barnard))
14. Lateral lobes shorter, basal segment of clasper about four times as long as terminal (Text-figs. 29, 31) . . . . *thomasseti* (Ulmer)
— Lateral lobes longer, basal segment of clasper about five times as long as terminal (Text-figs. 33, 35) . . . . *urema* Mosely

Cheumatopsyche lesnei (Mosely)

Hydropsychodes lesnei Mosely, 1932, *Mem. Estud. Mus. zool. Univ. Coimbra*, (1) **64** : 4, figs.
Cheumatopsyche uncata Kimmins, 1957, *Bull. Brit. Mus.* (*nat. Hist.*), *Ent.* **6** : 11, figs. ; 1958, op. cit., **6** : 250.

DISTRIBUTION. Mozambique, Uganda.

Cheumatopsyche triangularis (Ulmer)

(Text-figs. 1–4, 6, 9)

Hydropsychodes triangularis Ulmer, 1931, *Dtsch. ent. Z.* **1931** : 19, figs.

Closely allied to *C. trifida* (Mosely) but distinguishable in the male by the broader, triangular median lobe of the tenth segment and the more rounded, ear-like lateral lobes. The female provisionally associated with this species may be recognized by the curious hairy lobes, possibly evertile, on each side of the ninth segment, and by the form of the clasper receptacle. The apex of the aedeagus is broken in the holotype ♂ and the figures in this paper have been drawn from a paratype.

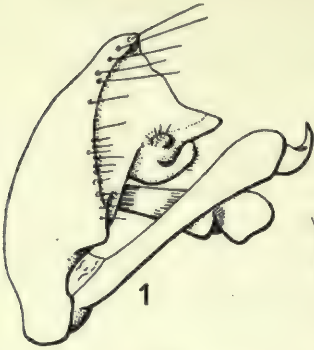
DISTRIBUTION. Natal : Weenen, Estcourt, Keate's Drift, National Park.

Cheumatopsyche trifida (Mosely)

(Text-figs. 5–6)

Hydropsychodes trifida Mosely, 1935, *Ann. Mag. n. H.* (10) **15** : 228.

Belgian Congo, Katanga, Biano (Type).
S. Rhodesia, Salisbury, light trap, x.1956, C. N. Smithers.



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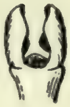

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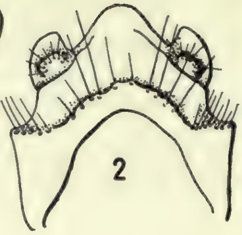

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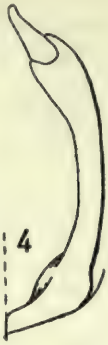

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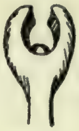

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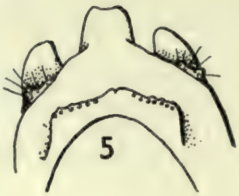

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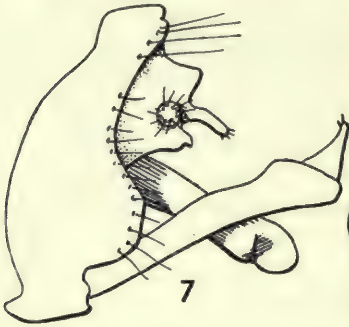

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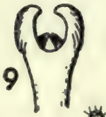

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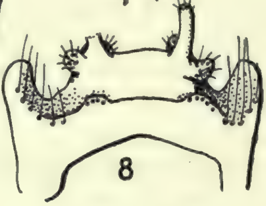

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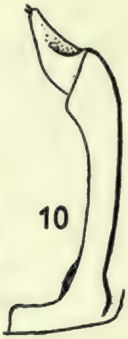

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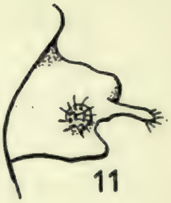

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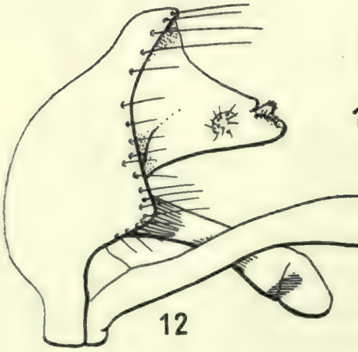

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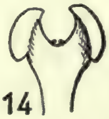

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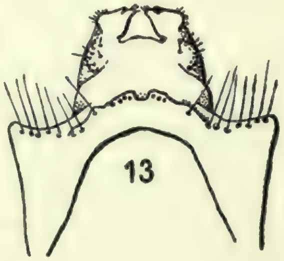

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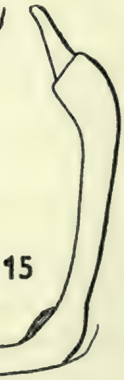

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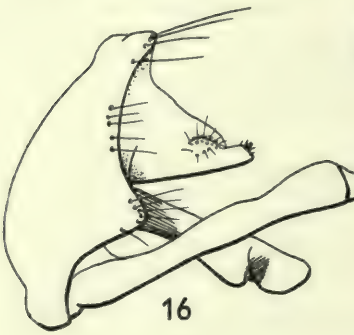

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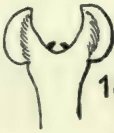

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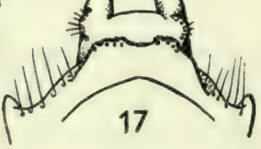

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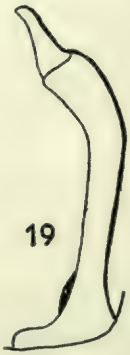

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Uganda, Ruwenzori Range, Bwamba Pass (west side), 5,500–7,500 ft., 1.xii.1934–31.i.1935.

Distinguishable in the male from *C. triangularis* (Ulmer) by the narrower, more parallel-sided median lobe of the tenth segment and the less rounded lateral lobes. The type was in rather poor condition and additional figures are now given of the genitalia of the Uganda male, which was determined by M. E. Mosely.

Cheumatopsyche copiosa Kimmins

1956, *Entomologist*, **89** : 196, figs.

DISTRIBUTION. Uganda, Gold Coast.

Cheumatopsyche digitata (Mosely)

(Text-figs. 7–11)

Hydropsychodes digitata Mosely, 1935, *Ann. Mag. n. H.* (10) **15** : 228.

In view of the comments made by Marlier (1943, *Inst. Parcs nat. Congo Belge*, **11** : 16) and by Jacquemart (1957, *Inst. R. Sci. nat. Belg., Expl. Hydrobiol. Kivu, Édouard et Albert*, **3** (2) ; 94), I have re-examined the type of *digitata* and made new figures from it. Jacquemart's *C. leloupi* is undoubtedly closely related to *digitata* (both being originally captured on Lake Kivu). In my original figure for Mosely's paper, the apex of the basal segment of the clasper is perhaps a little too dilated. The terminal segment is concave on its outer surface (as in *leloupi*). The digitate process of the tenth segment is correctly shown as curving down, but in an example from Uganda it more resembles the shape given for *leloupi*. The Uganda example has the relative lengths of the lower process and dorsal projection of the tenth tergite intermediate between *digitata* and *leloupi*. The " median nodule " of the aedeagus is incorrectly shown in the original figure and actually consists of two small lobes.

Jacquemart mentions two spines at the apex of the terminal segment of the clasper. These are not actually present in the only complete clasper of the type, but the bases

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FIGS. 1–4. *Cheumatopsyche triangularis* (Ulmer), ♂ genitalia of paratype. 1, lateral ; 2, ninth and tenth tergites, dorsal ; 3, apex of aedeagus, dorsal ; 4, right clasper, ventral.

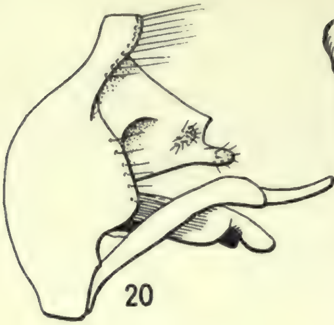
FIGS. 5–6. *Cheumatopsyche trifida* (Mosely), ♂ genitalia of example determined by Mosely. 5, ninth and tenth tergites, dorsal ; 6, apex of aedeagus, dorsal.

FIGS. 7–10. *Cheumatopsyche digitata* (Mosely), ♂ genitalia of type, aspects as in Text-figs. 1–4.

FIG. 11. *Cheumatopsyche digitata* (Mosely), ♂, tenth segment, lateral, of example from Uganda.

FIGS. 12–15. *Cheumatopsyche maculata* (Mosely), ♂ genitalia of type, aspects as Text-figs. 1–4.

FIGS. 16–19. *Cheumatopsyche maculata* (Mosely), ♂ genitalia of *Ch. later a lis* (Barnard), type, aspects as Text-figs. 1–4.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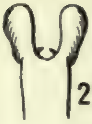
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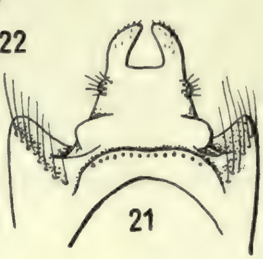
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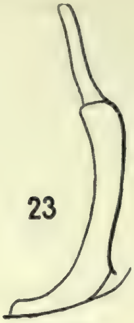
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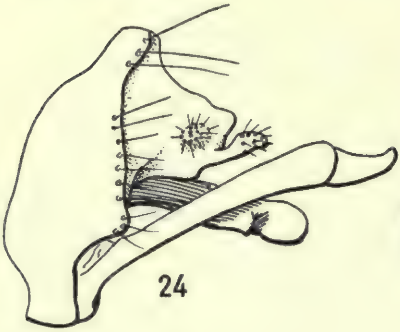
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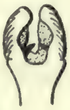
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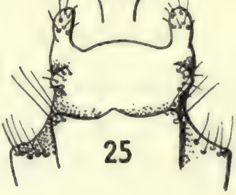
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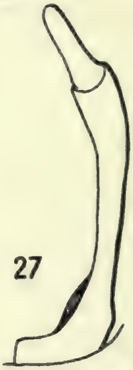
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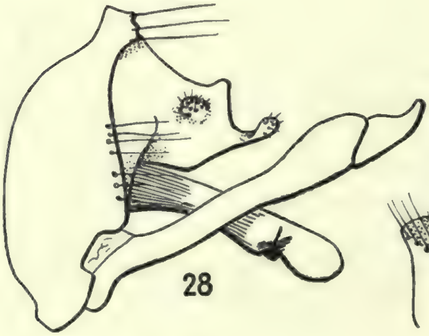
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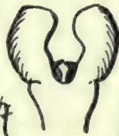
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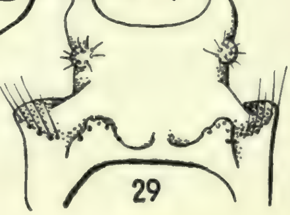
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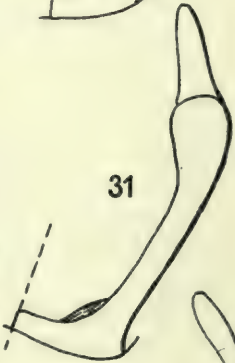
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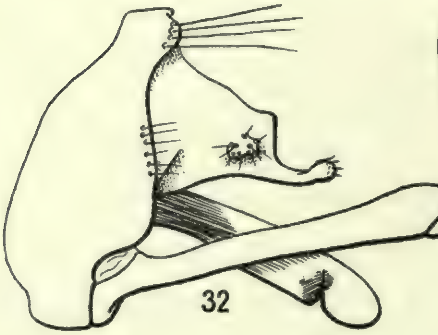
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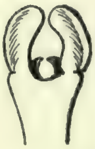
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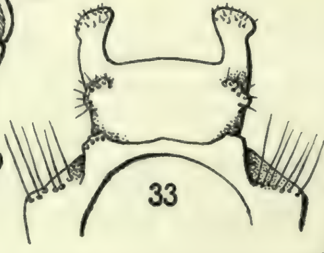
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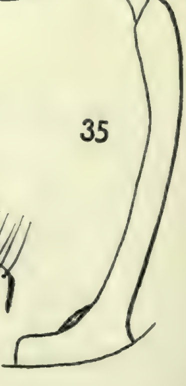
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of them can be seen. There is one other difference which has not been mentioned by either Marlier or Jacquemart, namely that the side-piece of the ninth segment is more prominent and situated more in the lower half of the segment than is shown in Jacquemart's figure. On the evidence of his figures I am inclined to consider his species as distinct.

DISTRIBUTION. Belgian Congo, Uganda.

Cheumatopsyche leloupi Jacquemart

1957, *Inst. R. Sci. nat. Belg., Expl. Hydrobiol. Kivu, Édouard et Albert,* **3** (2) : 94, figs.

DISTRIBUTION. Belgian Congo.

Cheumatopsyche maculata (Mosely)

(Text-figs. 12–19)

Hydropsychodes maculata Mosely, May, 1934, *Eos,* **9** : 22, figs.
Hydropsychodes lateralis Barnard, July, 1934, *Trans. R. Soc. S. Afr.* **31** : 362.
Hydropsychodes maculata Barnard, 1940, *Ann. S. Afr. Mus.* **32** : 653.

Barnard records *lateralis* from numerous localities but unfortunately the paratypes sent to the British Museum (Nat. Hist.) consisted of two distinct species. Through the kindness of Dr. A. J. Hesse, of the South African Museum, I have had an opportunity of examining the specimen of *lateralis* Barnard marked Type and of making a preparation of the male genitalia. As a result, I am able to confirm that this type is indeed a synonym of *maculata* Mosely, as suggested by Barnard in 1940. The type of *lateralis* is from Table Mt. slopes, Camp Bay, 3.ix.1933, K. H. Barnard, the first locality cited. His figures are however from Groot Drakenstein and Ceres examples and do not give a satisfactory interpretation of the species as defined by the type. They are, I believe, examples of the species *Ch. afra* (Mosely). The type is characterized by a small, setose finger on the inner apical margin of the lateral lobe of the tenth tergite and by the widely-spread apices of the aedeagus. One of the two paratypes in the British Museum (Nat. Hist.) is conspecific with the type.

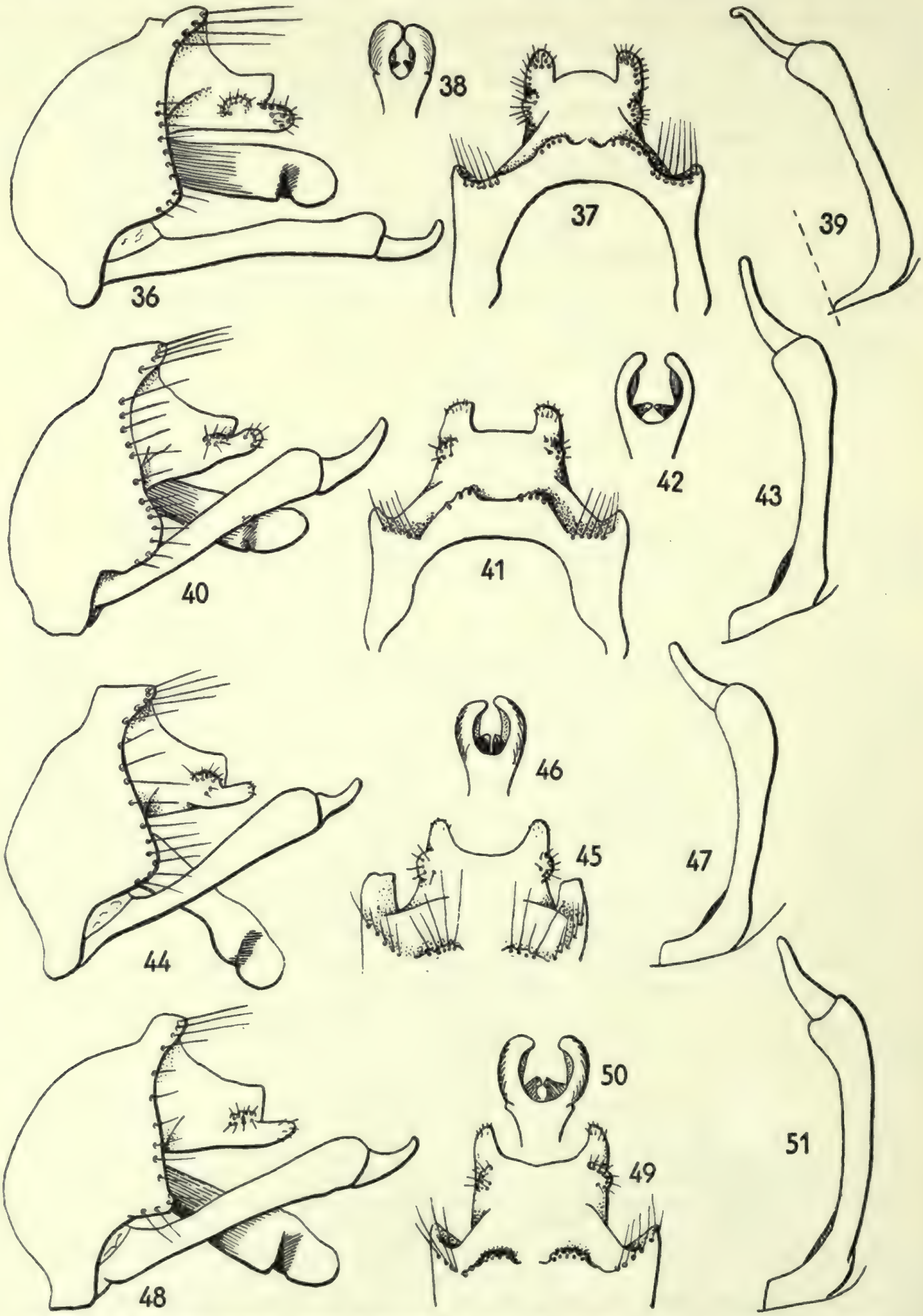
From the limited material at my disposal, the distribution of this species is South Africa, Table Mt., Pniel, and Stellenbosch.

FIGS. 20–23. *Cheumatopsyche obscurata* (Ulmer), ♂ genitalia of type. 20, lateral; 21, ninth and tenth tergites, dorsal; 22, apex of aedeagus, dorsal; 23, right clasper, ventral.

FIGS. 24–27. *Cheumatopsyche falcifera* (Ulmer), ♂ genitalia of *Ch. zuluensis* (Barnard), type, aspects as Text-figs. 20–23.

FIGS. 28–31. *Cheumatopsyche thomasseti* (Ulmer), ♂ genitalia of paratype, aspects as Text-figs. 20–23.

FIGS. 32–35. *Cheumatopsyche urema* Mosely, ♂ genitalia of type, aspects as Text-figs. 20–23.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FIGS. 36–51. *Cheumatopsyche afra* (Mosely), ♂ genitalia, lateral; ninth and tenth tergites, and apex of aedeagus, dorsal; and right clasper, ventral, of examples from various localities. 36–39, Natal, National Park; Mar. 1932; 40–43, Type, Sierra Leone; 44–47, Lake Tanganyika; 48–51, S. Africa, Berg River.

Cheumatopsyche plutonis (Banks)

Symphitopsyche plutonis Banks, *Trans. Am. ent. Soc.* **39** : 239, figs.
Hydropsychodes plutonis (Banks), Ulmer, 1930, *Ann. Mag. n. H.* (10) **6** : 488 figs.

DISTRIBUTION. Abyssinia.

Cheumatopsyche diminuta (Walker), Ulmer

Hydropsyche diminuta Walker, 1853, *Cat. Neur. Ins. B. M.* : 115.
Hydropsychodes diminuta (Walker), Ulmer, 1931, *Dtsch. ent. Z.* **1931** : 16, figs.

DISTRIBUTION. W. Africa.

Cheumatopsyche lobata Marlier

1943, *Expl. Parc nat. Albert*, **44** : 10, figs.

DISTRIBUTION. Belgian Congo.

Cheumatopsyche obscurata (Ulmer)

(Text-figs. 20–23)

Hydropsychodes obscurata Ulmer, 1930, *Ann. Mag. n. H.* (10) **6** : 485, figs.

New figures are given of the male genitalia of the type.

DISTRIBUTION. Abyssinia.

Cheumatopsyche falcifera (Ulmer)

(Text-figs. 24–27)

Hydropsychodes falcifera Ulmer, 1930, *Ann. Mag. n. H.* (10) **6** : 482, figs.
Hydropsychodes zuluensis Barnard, 1934, *Trans. R. Soc. S. Afr.* **21** : 360, figs. **Syn. Nov.**
Cheumatopsyche falcifera Kimmins, 1957, *Bull. Brit. Mus. (nat. Hist.) Ent.* **6** : 10, figs.

Examination of the type of *zuluensis* (again through the kindness of Dr. Hesse) confirms the suggestion that I made in 1957 that this species was not distinct from *C. falcifera* (Ulmer). There are slight differences but not, in my opinion, sufficient to justify the separation of the South African forms. Barnard suggests that *zuluensis* might be a variety of *thomasseti*, but examination of the type does not confirm this.

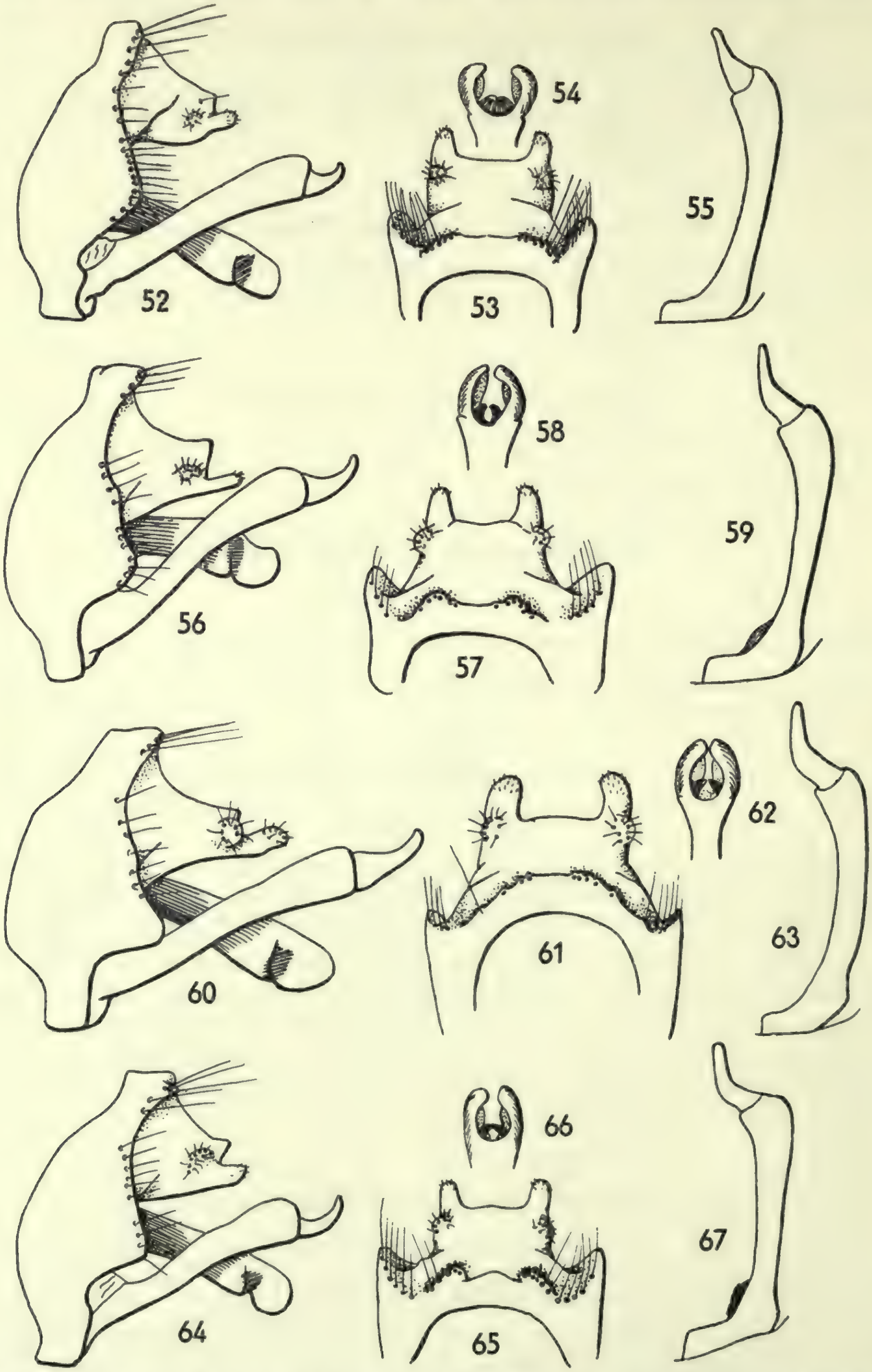
DISTRIBUTION. Abyssinia, Uganda and S. Africa.

Cheumatopsyche thomasseti (Ulmer)

(Text-figs. 28–31, 70–74)

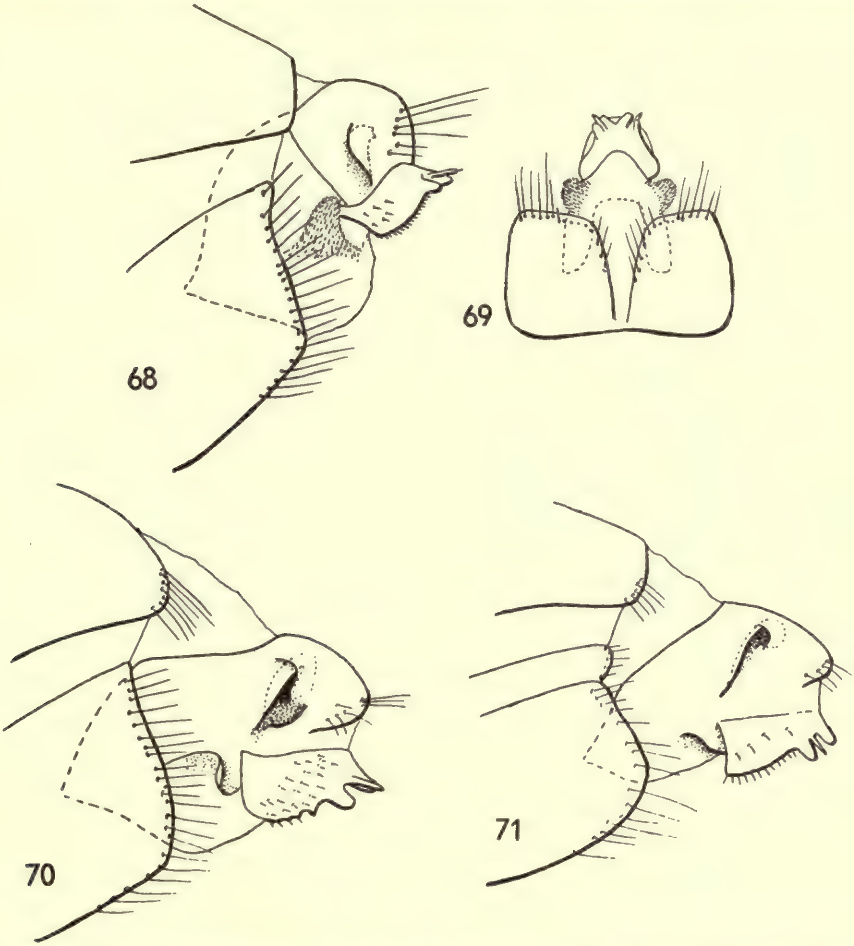
Hydropsychodes thomasseti Ulmer, 1931, *Dtsch. ent. Z.* **1931** : 18, figs.

The widely excised apical margin of the tenth tergite and the clavate and upturned apices of the lateral lobes, the comparatively straight and stout terminal segments



FIGS. 52–67. *Cheumatopsyche afra* (Mosely), ♂ genitalia, lateral; ninth and tenth tergites and apex of aedeagus, dorsal; and right clasper, ventral, of examples from various localities. 52–55, *Ch. lateralis* (Barnard), paratype; 56–59, S. Africa, Berg River, Tulbagh Barrage; 60–63, Natal, National Park; 64–67, Natal, NGobevu.

of the claspers seen in ventral view are fairly characteristic of this species. The holotype male lacks the apices of the claspers and the figures have therefore been drawn from a paratype, which in other respects resembles the type. Text-fig. 71 is from a female, bred from a larva of the type which produced an undoubted male *thomasseti*. Text-fig. 70 is from a female taken with male *thomasseti* but not definitely associated.



Figs. 68–71. *Cheumatopsyche* spp., female genitalia. 68, *Ch. ?triangularis* (Ulmer), Natal, Keate's Drift, lateral; 69, the same, ventral; 70, *Ch. ?thomasseti* (Ulmer), Natal, Jameson's Drift, lateral; 71, *Ch. thomasseti* (Ulmer), S. Africa, Berg River, lateral.

C. urema Mosely (Kenya) is closely allied to *C. thomasseti* but may be distinguished by the relatively longer basal segment of the clasper. This character shows some variation in *thomasseti* and *urema* may prove to be synonymous with it.

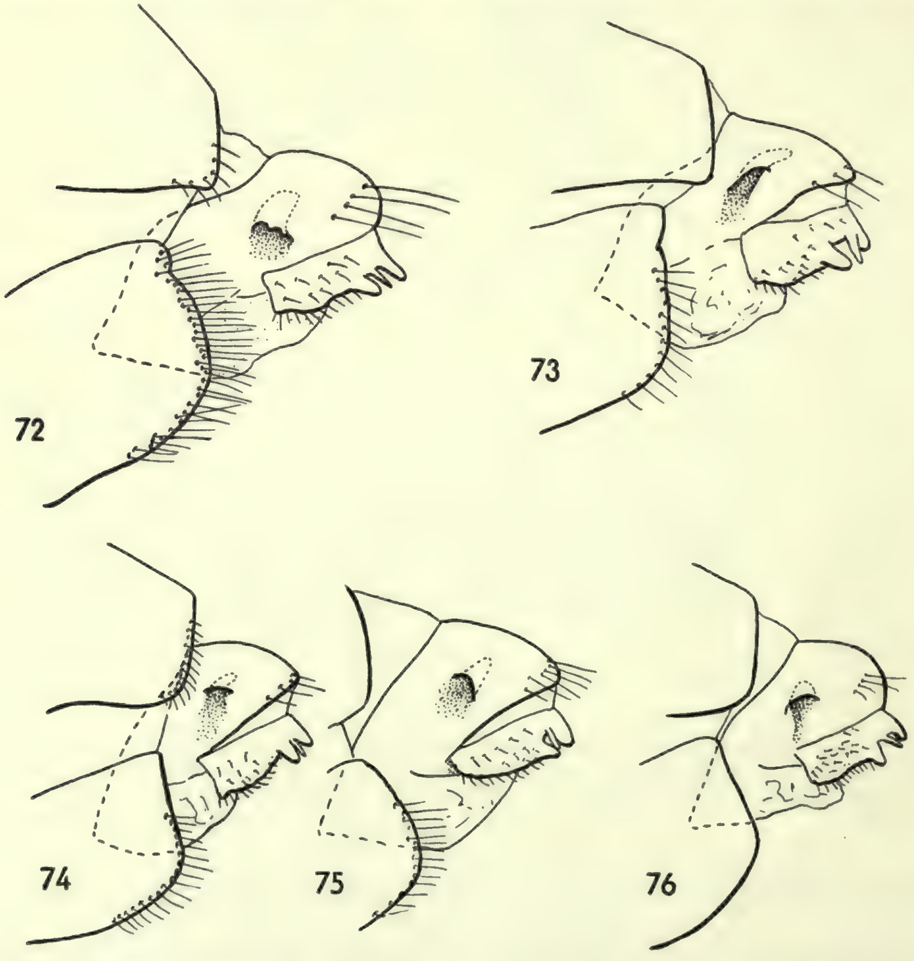
Distribution. Natal, Cape Province.

Cheumatopsyche afra (Mosely)

(Text-figs. 36–67, 72–76)

Hydropsychodes afra Mosely, 1935, *Ann. Mag. n. H.* (10) **15** : 229, figs.
Hydropsychodes lateralis Barnard, (partim), 1934, *Trans. R. Soc. S. Afr.* **21** : 432–35, figs.

Much time has been spent in considering the examples now included in this species. At first there seemed to be several closely-allied species involved, but as more material was examined, the differences between them became less defined and it now seems probable that we are dealing with a fairly widespread, variable species. Indeed, this was Barnard's view and had it not been for the unfortunate choice of the Table



Figs. 72–76. *Cheumatopsyche ?afra* (Mosely), ♀ genitalia, lateral, of examples from various localities. 72, Natal, National Park ; 73, Natal, National Park ; 74, S. Africa, Berg River ; 75, S. Africa, Berg River ; 76, Natal, Weenen.

Mountain specimen as the TYPE of *lateralis*, the present species would have continued to be known as *lateralis*, with *afra* Mosely in synonymy.

I have seen no more examples from the type locality of *afra* (Sierra Leone), but examples from Lake Tanganyika, S. Rhodesia, Natal and S. Africa are considered to be this species. The S. African and Natal specimens represent part of Barnard's *lateralis*.

Figures are given of the male genitalia of a number of examples from various localities to indicate the degree of variation. The species is characterized by the rather short, blunt lateral lobes of the tenth tergite, separated by a wide excision, the lobes of the aedeagus not widely outspread and the terminal segment of the clasper more or less strongly angled or sinuous in ventral view. Five forms of female genitalia are also figured. The female (Text-fig. 72) is from the same locality as the male of Text-figs. 36–39, but the narrower clasper receptacle of Text-fig. 73 would appear to be a more suitable fit for the clasper of the male of Text-figs. 36–39. Text-fig. 73 is however almost certainly associated with the male of Text-figs. 48–51, and was bred from a larva with an asymmetrically incised clypeus.

THE EPHEMEROPTERA TYPES OF SPECIES DESCRIBED BY A. E. EATON, R. McLACHLAN AND F. WALKER, WITH PARTICULAR REFERENCE TO THOSE IN THE BRITISH MUSEUM (NATURAL HISTORY)

By D. E. KIMMINS

SOME years ago I prepared a paper on the lectotypes of Trichoptera from the McLachlan collection and in the present work it is proposed to deal in a somewhat similar manner with the types of the Ephemeroptera described by the Rev. A. E. Eaton, R. McLachlan and F. Walker. The acquisition by the British Museum (Nat. Hist.) of the McLachlan collection in 1938 augmented considerably the number of our Ephemeroptera type-specimens. McLachlan did not describe many Ephemeroptera himself, but made his collection available to Eaton, who in return gave much of his own material to the McLachlan collection. Thus the latter was very rich in Eaton types, many of which had been for many years almost inaccessible to specialists. It is a curious fact, however, that in spite of the richness of the collection McLachlan seemed to take comparatively little interest in this group. In many cases Eaton's type-specimens bore no type-labels and were only rediscovered after very careful search. The types of some species are still missing and must be presumed lost or destroyed.

As with the Trichoptera, standard British Museum type-labels, as used in the Entomological Department—a circular label with the word " Type " encircled with a red ring (or green for Walker types)—have been added to all types recognized, and to types designated in this paper my own label " LECTOTYPE (or LECTOALLOTYPE), D. E. Kimmins det." with date has been added. Specimens from the McLachlan collection mostly bear a printed label on blue paper, giving the name over which they stood in the McLachlan collection, and all have a printed B.M. Registration number label, also on blue paper " McLachlan Coll., B.M. 1938–674 ". In the present work, to save space, only the register number is quoted.

The genera and species are arranged alphabetically in families, the present combination of genus and species being used, but the original combination is also given in its alphabetical position, with a reference to its present generic placing. Advantage has been taken of this paper to give figures of genitalia, etc., of a number of species, which it is hoped will make their recognition easier for other workers. References are also given to published figures of genitalia of other species.

Dr. H. T. Spieth visited this museum in 1939 and studied the types of the North American species described by Walker and Eaton and his results were published in 1940–41. References are given to these and to other published type-designations and in the case of types not in the British Museum, an indication is given of their known or presumed location.

In conclusion I should like to express my thanks to the various workers who have answered my enquiries as to the location of types stated to be in their museums.

Family SIPHLONURIDAE

Ameletus dissitus Eaton, 1885, p. 210, pl. 44, fig. 22.

LECTOTYPE ♂. Designated by Spieth, 1941, p. 91. Male genitalia re-figured by McDunnough, 1929, p. 176, fig. 11.

Ameletus exquisitus Eaton, 1885, p. 212, pl. 44, fig. 24.

LECTOTYPE ♂. Designated by Spieth, 1941, p. 91, fig. 8.

Ameletus inopinatus Eaton, 1887, p. 307, pl. 65, fig. 14.

LECTOTYPE ♀. Schwarzwald, Feldbergsee, 4,000–5,000 ft., 29.vii.1885. B.M. 1938–674. LECTOALLOTYPE ♂. Lac de Retourna, Vosges, 23.vii.1883. B.M. 1938–674. Male genitalia re-figured by Kimmins, 1942*a*, p. 43, fig. 24. The female has been selected as the lectotype because Eaton's description is based upon that sex and its locality is listed first.

Ameletus perscitus Eaton. See *Ameletopsis*.

Ameletus subnotatus Eaton, 1885, p. 211, pl. 64, fig. 23.

LECTOTYPE ♂. Designated by Spieth, 1941, p. 92, fig. 7. LECTOALLOTYPE ♀. Colorado. B.M. 1938–674. Ameletus subnotatus Etn., det. A. E. Eaton.

Ameletopsis perscitus (Eaton), 1899, p. 291 (as *Ameletus*).

HOLOTYPE ♀. No. 26. Wellington, Hudson. *Ameletus perscitus, sp. nov.*, in Eaton's writing. B.M. 1938–674.

Chirotonetes intermedius Eaton. See *Isonychia*.

Chirotonetes ornatus Eaton. See *Nesameletus*.

Dipteromimus tipuliformis McLachlan, 1875, p. 170.

HOLOTYPE ♂ in Leiden Museum.

Metamonius anceps Eaton, 1885, p. 209, pl. 20, fig. 34*b*.

(Text-fig. 1)

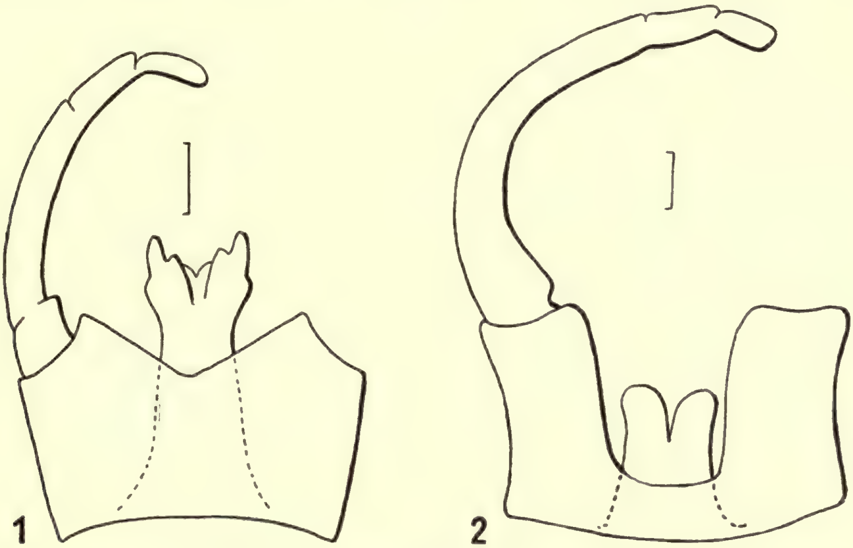
LECTOTYPE ♂. Chili, Reed. B.M. 1938–674. Metamonius anceps Etn., det. A. E. Eaton. The female imago has been described by Demoulin, 1955, p. 2 and the ALLOTYPE should therefore be selected from one of the examples in the Institut Royal des Sciences naturelles de Belgique.

Nesameletus ornatus (Eaton), 1883, pl. 19, fig. 33*c*; 1885, p. 208; 1888, p. 321 (as ? *Chirotonetes*).

The types of this species, from Christchurch, New Zealand, collected by Wakefield, have not been traced in the McLachlan collection. A comment by Eaton, 1888, p.

321, " Described and illustrated by me in 1876 after specimens at that time in the M'Lachlan Mus.", suggests that even in 1888 there was some doubt whether the original specimens were still in existence. In 1899, p. 291, Eaton again refers to this species, giving as additional locality, " Wellington (Hudson, no. 42) ", and three examples bearing this number have been found in the McLachlan collection, one female imago, one male and one female subimagines.

It is proposed therefore to designate the female imago from Wellington as NEOTYPE of *Nesameletus ornatus* (Eaton). It bears the following labels, No. 42. Wellington, Hudson. B.M. 1938–674. Ameletus ornatus Etn., det. A. E. Eaton. This neotype is located in the British Museum (Nat. Hist.).



FIGS. 1–2. ♂ Genitalia, ventral, of 1, *Metamonius anceps* Eaton, paratype ; 2, *Oniscigaster wakefieldi* McLachlan, example from Wakefield collection. (Scale = 0·2 mm.)

Oniscigaster distans Eaton, 1899, p. 293, pl. 10, figs. 6*b*, *c*.

LECTOTYPE ♀. No. 34. Wainuiomata R., N.Z., Hudson. *Oniscigaster distans sp. nov.*, in Eaton's writing. B.M. 1938–674. There are also a paratype female (No. 34*b*) and a paratype male subimago (No. 34). The paratype female is smaller than the lectotype.

Oniscigaster intermedius Eaton, 1899, p. 292, pl. 10, fig. 6*a*.

HOLOTYPE ♀. No. 34*a*. Mt. Arthur, N.Z., Hudson. *Oniscigaster intermedius Etn.*, in McLachlan's writing. B.M. 1938–674. It may be pointed out that in the original description the locality was erroneously printed as M'Arthur.

Oniscigaster wakefieldi McLachlan, 1873, p. 110; 1874, p. 140.

(Text-fig. 2)

Lectotype ♀. McL. type-label (pink). No. 20. Christchurch, N.Z., Wakefield. *Oniscigaster wakefieldi McL.*, in McLachlan's writing. B.M. 1938–674.

Siphlonurus aestivalis (Eaton), 1903, p. 30 (as *Siphlurus*).

(Text-fig. 3)

Lectotype ♂. McL. type-label (pink). *Sorüm, 10.viii.02* (on round label), in Eaton's writing. *Siphlurus aestivalis*, Eaton's writing. B.M. 1938–674. Siphlurus aestivalis Etn., det. A. E. Eaton. Lectoallotype ♀. Locality label as above. B.M. 1938–674. Siphlurus aestivalis Etn., det. A. E. Eaton. New figures are given of the genitalia, drawn from a paratype male.

Siphlonurus annulatus (Walker), 1853, p. 567 (as *Baëtis*).

Holotype ♂. Discussed by Spieth, 1940, p. 332. Male genitalia figured by Traver, 1935, p. 464, fig. 123. This species is now considered a synonym of *Siphlonurus alternatus* (Say).

Siphlonurus armatus Eaton, 1870, p. 7.

Lectotype ♂. Kerry: lakes of Killarney, 1861, P. Bouchard. McLachlan's register number, 2/62. *Siphlurus armatus Etn.*, in McLachlan's writing. B.M. 1938–674. The type is in rather poor condition, legs almost entirely missing, genitalia mounted as a preparation, attached to the pin. Male genitalia figured by Kimmins, 1942*a*, p. 42, fig. 23A.

Siphlonurus binotatus (Eaton), 1892, p. 302 (as *Siphlurus*).

(Text-fig. 4)

Lectotype ♂. McL. type-label (pink). Japan, Pryer. *Siphlurus binotatus Etn.* in McLachlan's writing. B.M. 1938–674. Lectoallotype ♀. Labels as for male. The apex of the abdomen of the male has been cleared in caustic potash solution and preserved in a small tube of glycerine. Uéno, 1931, p. 206, has given a figure of the male genitalia of this species, but in his specimen the penis-lobes appear to have been distorted or damaged and the projection at the base of the forceps is too acute. I am therefore offering new figures, made from the lectotype male.

Siphlonurus lacustris Eaton, 1870, p. 7.

Holotype ♂. *Wales, Llyn Llydaw, vii.1868. Siphlurus lacustris* ♂. This specimen is preserved in a glycerine-alcohol mixture and is much discoloured. One penis-lobe has been mounted as a microscope preparation. The foregoing data are in Eaton's writing on the cork of the tube. Male genitalia figured by Kimmins, 1942*a*, p. 41, fig. 22.

Siphlonurus linnaeanus Eaton, 1871, p. 127, pl. 6, figs. 3, 3*a*.

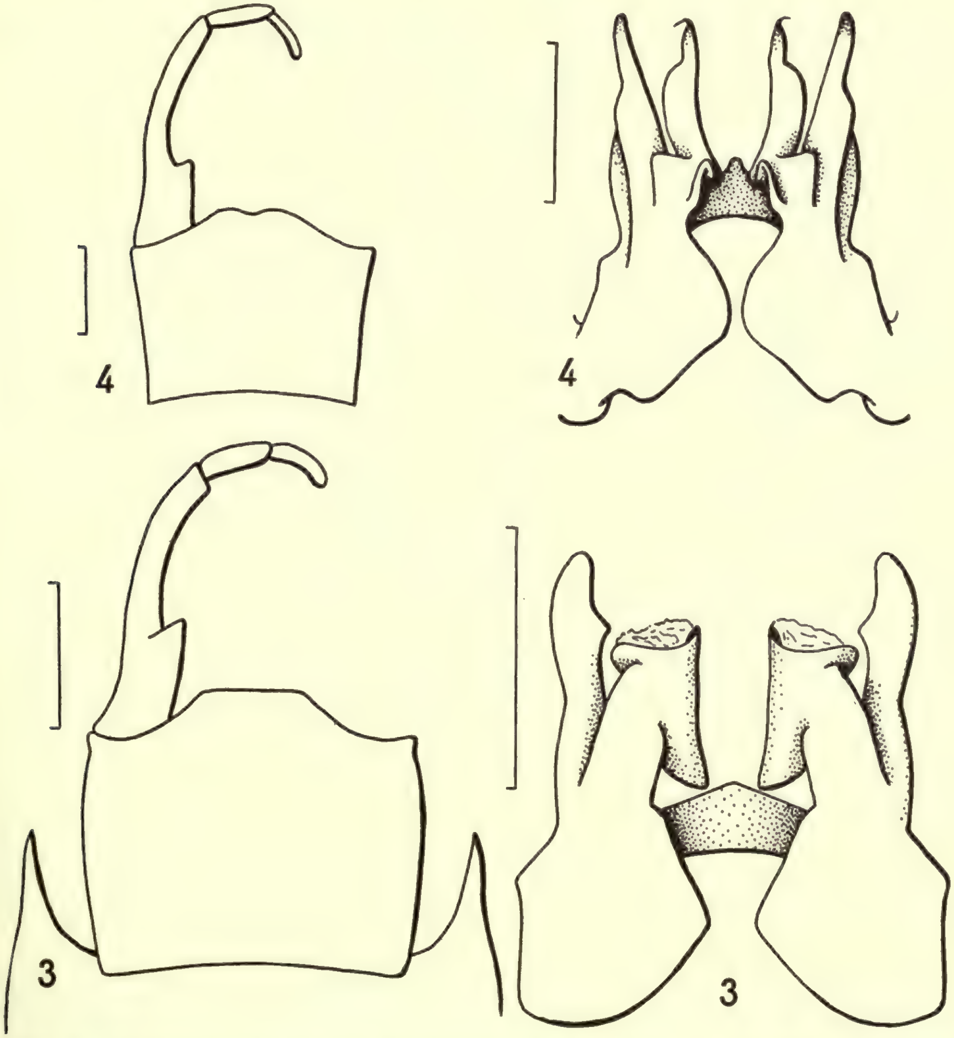
Holotype ♂ in Linnaean collection, Linnean Society, London. Male genitalia figured by Kimmins, 1942*a*, p. 42, fig. 23L.

Siphlonurus mirus (Eaton), 1885, p. 221 (as *Siphlurus*).

HOLOTYPE ♀ in Mus. comp. Zool. Cambridge, Mass., U.S.A.

Siphlonurus occidentalis (Eaton), 1888, p. 218, pl. 64, fig. 62 (as *Siphlurus*).

LECTOTYPE ♂. Designated by Spieth, 1941, p. 92. LECTOALLOTYPE ♀. Colorado. B.M. 1938–674. Siphlurus occidentalis Etn., det. A. E. Eaton. Male genitalia figured by Traver, 1935, p. 464, fig. 122.



FIGS. 3–4. ♂ Genitalia, ventral (with penis-lobes more enlarged) of 3, *Siphlonurus aestivalis* (Eaton), paratype; 4, *Siphlonurus binotatus* (Eaton), type. (Scale = 0·5 mm.)

Siphlonurus typicus (Eaton), 1885, p. 222 (as *Siphlurus*).

Lectotype ♂. Designated by Spieth, 1941, p. 93. Lectoallotype ♀. Denham, Mass. B.M. 1938–674. Siphlurus typicus Etn., det. A. E. Eaton. Male genitalia figured by Traver, 1935, p. 464, fig. 122 (as *berenice*).

Family Isonychiidae

Coloburiscus haleuticus (Eaton), 1871, p. 133, pl. 7, figs. 7, 7*a*.

Holotype ♂ in National Museum of Victoria, Melbourne (Nat. Mus. Type Registration No. 471). Mr. A. Neboiss kindly supplied me with this information and writes that it " is in quite good condition, genitalia appear to be perfect."

Coloburiscus humeralis (Walker), 1853, p. 552 (as *Palingenia*).

The Holotype is a female, lacking one fore wing.

Coloburiscus remotus (Walker), 1853, p. 564 (as *Baëtis*).

The Type is missing in the British Museum (Nat. Hist.). Eaton, 1871, 1885, placed this species in the synonymy of *Coloburiscus humeralis* (Walker) and one presumes that he may therefore at some time have examined the type. On the other hand, our Departmental copy of Walker's list, 1853, has been annotated in Eaton's handwriting and against *Baëtis remota* is the comment " *Unrepresented* ".

Isonychia bicolor (Walker), 1853, p. 552 (as *Palingenia*).

Holotype is a female subimago, which was studied by Spieth, 1940, p. 326.

Isonychia ignota (Walker), 1853, p. 571 (as *Baëtis*).

(Text-fig. 5)

Holotype ♂. No locality label. *Baëtis*? *ignota Walker*, *Type*, in Eaton's writing.

Isonychia intermedia (Eaton), 1885, p. 207 (as *Chirotonetes*).

Holotype ♂. Studied by Spieth, 1941, p. 93, fig. 2.

Isonychia manca Eaton, 1871, p. 134 (*partim*).

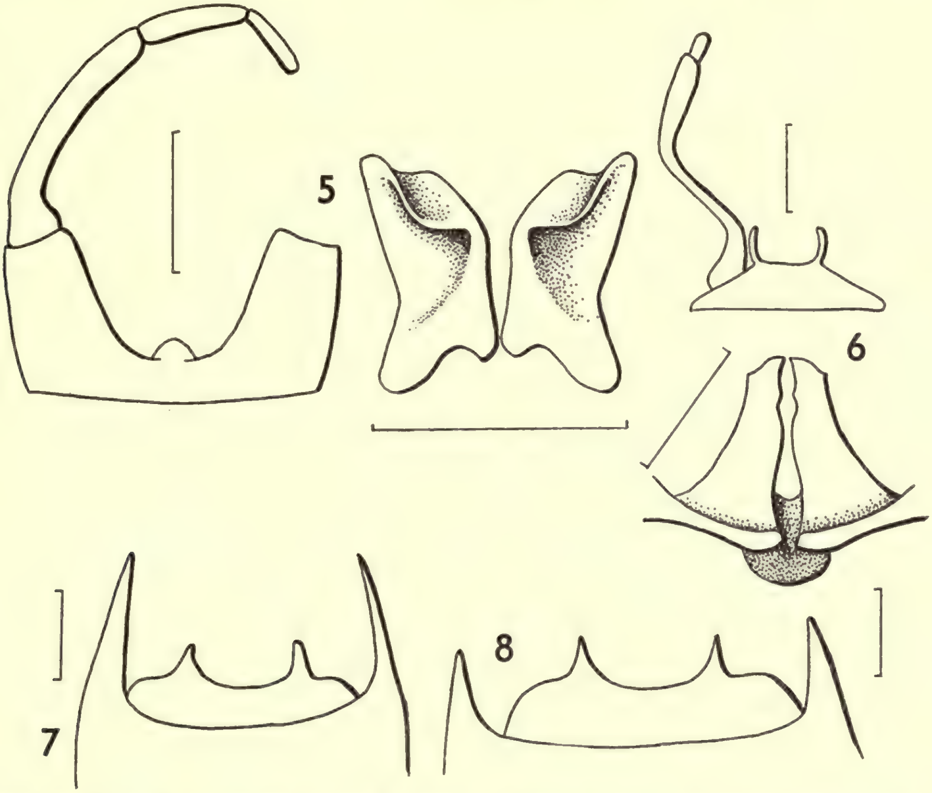
Lectotype ♀. Designated by Spieth, 1941, pp. 93–94.

Family Oligoneuriidae

Elassoneuria candida Eaton, 1913, p. 272.

(Text-fig. 8)

Holotype ♀. S. Nigeria, Ilesha, L. E. H. Humfrey. 1911–57. *Elassoneuria candida sp. nov.*, in Eaton's writing. The right pair of wings was mounted in Canada balsam by Eaton. The apex of the abdomen has since been removed, cleared in caustic potash solution and preserved in glycerine. The ventral plate is produced in two acute points, separated by a wide, rounded excision. This species has been synonymized with *Elassoneuria trimeniana* (McLachlan), but a comparison of the ventral plates of the two types shows slight differences, and in *trimeniana* the lateral processes of the sternite are about twice as long as the ventral plate. Examples of *candida* from Uganda show some variation in the relative length of the lateral processes, but none are as long as in the type of *trimeniana*.



FIGS. 5–8. 5–6, ♂ Genitalia, ventral (with penis-lobes, dorsal and more enlarged) of 5, *Isonychia ignota* (Walker), type ; 6, *Noya pallipes* (Eaton), paratype ; 7–8, ♀ ventral plate of 7, *Elassoneuria trimeniana* (McLachlan), type ; 8, *Elassoneuria candida* Eaton, type. (Scale = 0·5 mm.)

Elassoneuria trimeniana (McLachlan), 1868, p. 177 (as *Oligoneuria*).

(Text-fig. 7)

HOLOTYPE ♀. Natal, Umvoti District, Mapumulo Mission Station, 3rd March, 1867, at light. *Oligoneuria trimeniana M'Lach. Type,* in McLachlan's writing. B.M. 1938–674. The apex of the abdomen has been removed, cleared in caustic potash solution and is preserved in a small tube of glycerine.

Homoeoneuria salviniae Eaton, 1881, p. 192.

Lectotype ♀. McL. type-label (purple). Dueñas, 4,950 [? feet]. Salvin. *Homoeoneuria salviniae Etn.*, in McLachlan's writing. B.M. 1938–674. Homoeoneuria salviniae Etn., det. A. E. Eaton.

Lachlania lucida Eaton, 1883, p. 35, pl. 3, fig. 5.

Holotype ♂, Allotype ♀ probably in the Paris Museum. Two female paratypes in the British Museum (Nat. Hist.).

Noya pallipes (Eaton), 1883, p. 34 (as *Spaniophlebia*).

Lectotype ♂. Ecuador. B.M. 1938–674. Spaniophlebia pallipes Etn., det. A. E. Eaton. Figures of the male genitalia have been made from the only male paratype still retaining an abdomen.

Oligoneuria dobbsi Eaton. See *Oligoneuriopsis*.

Oligoneuria trimeniana McLachlan. See *Elassoneuria*.

Oligoneuriopsis dobbsi (Eaton), 1912, p. 243 (as *Oligoneuria*).

(Text-figs. 9–10)

Holotype ♀. British East Africa, Sotik Post, Lumbwa District, ½ mile from R. Nyangoria, 6,000 ft., 22.viii.1911. C. M. Dobbs. 1913–40. *Oligoneuria dobbsi Etn. Type*, in Eaton's writing.

In 1924, Ulmer (p. 31) transferred this species to *Oligoneuriella*, with which genus the venation agrees well. There is however in the British Museum (Nat. Hist.) a male which I believe to be conspecific with *dobbsi* Eaton, and this has four-segmented forceps, thus differing from *Oligoneuriella* and resembling *Oligoneuriopsis* Crass, to which genus I now transfer it. Whilst dealing with Eaton's type, it may be pointed out that the minute fork shown at the apex of M in Eaton's figure is incorrect, the supposed anterior branch being merely an accidental fold in the membrane of the wing.

Allotype ♂. Brit. E. Africa, Lumbwa District, Ainap Kororik, 10 miles from Kericho, about 6,500 ft., 7.vi.1915, C. M. Dobbs. 1915–280. Abdomen in glycerine, one pair of wings mounted on microscope slide.

Smaller and paler than holotype. Anterior leg fuscous as far as two basal tarsal segments, apex of tarsus creamy white. Median and posterior femora pale tawny, tibiae creamy white except at base, which is pale fuscous, tarsi whitish, two basal segments pale fuscous. Thorax light brown with whitish sutures. Abdomen pale fuscous, setae and forceps whitish.

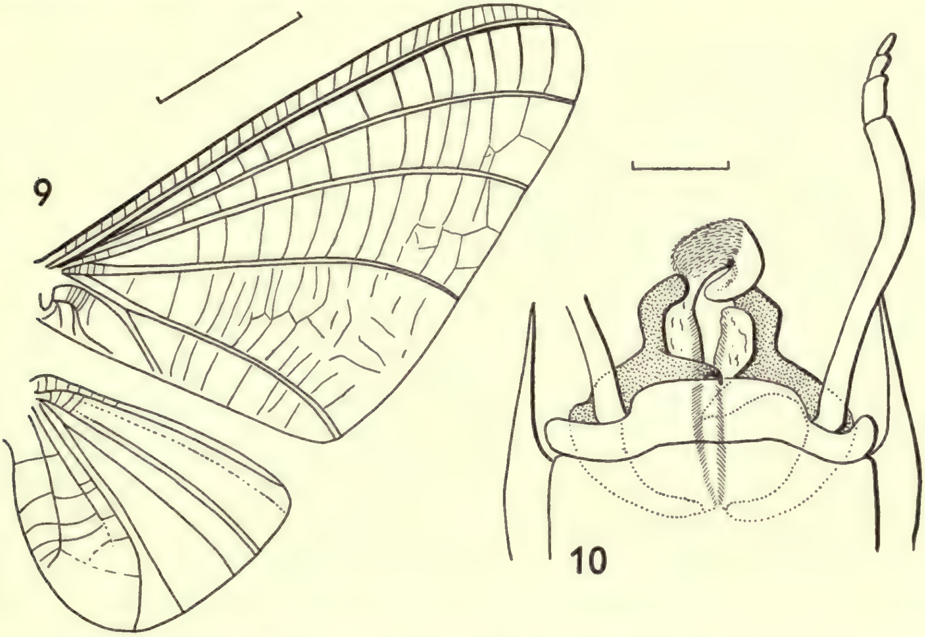
Forceps-base short and broad, produced between the forceps in a short transverse lobe. Penis-lobes large, triangular, rather complex. In ventral view the outer margin, which is more sclerotized, is rather sinuous and there is a median claw-shaped process directed inwards. Apex of penis-lobe bent inward and clavate, and from the end of it can be extruded a membranous structure, as shown on the left side of the figure. Forceps four-segmented, very lightly sclerotized, basal segment more than three times as long as remaining segments together.

Length of fore wing, 18 mm.

Spaniophlebia pallipes Eaton. See *Noya.*

Spaniophlebia trailiae Eaton, 1881, p. 191.

Lectotype ♂. McL. type-label (purple). Saõ Paulo, 26.xi.74, light. *Spaniophlebia trailiae Etn.*, in McLachlan's writing. B.M. 1938–674. Two examples (date as above) of the type series remained in the McLachlan collection. Both had been hollowed out by the attacks of cabinet pests and one had lost the apex of the abdomen completely. The other, designated Lectotype, had had most of the genitalia devoured, and as the apex of the abdomen was very fragile and loose, it has been removed and placed in a small tube of glycerine for greater safety.



Figs. 9–10. *Oligoneuriopsis dobbsi* (Eaton), ♂ allotype. 9, wings (scale = 5 mm.); 10, genitalia, ventral (scale = 0·5 mm.).

Family Heptageniidae

Atopopus tarsalis Eaton, 1881, p. 22.

(Text-fig. 11)

Lectotype ♂. Labuan. B.M. 1938–674. Atopopus tarsalis Etn., det. A. E. Eaton. The lectotype lacks its setae and the paratype its head.

Bleptus fasciatus Eaton, 1885, p. 243, pl. 65, fig. 1.

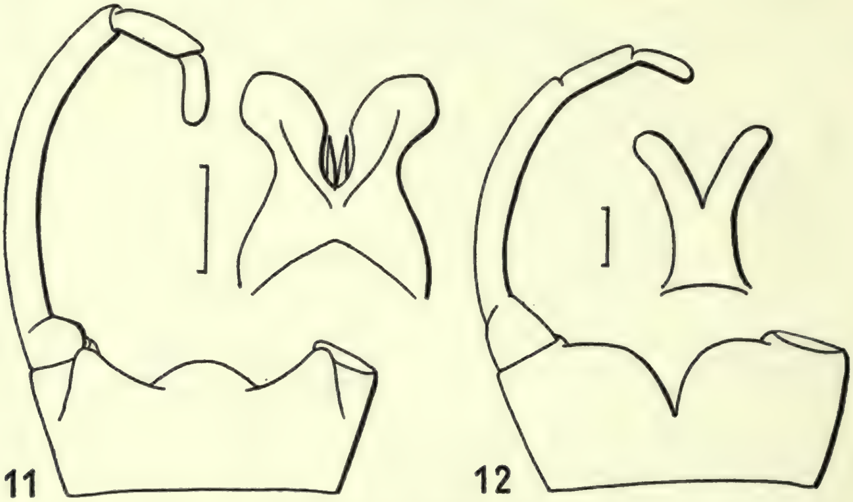
(Text-fig. 12)

HOLOTYPE ♂. Japan, Yagohara, 29.vii.1881, G. Lewis. B.M. 1938–674. Bleptus fasciatus Etn., det. A. E. Eaton.

Cinygma geminatum Eaton. See *Ironodes*.

Cinygma integrum Eaton, 1885, p. 248, pl. 65, fig. 4.

LECTOTYPE ♂. Designated by Spieth, 1941, p. 88. Male genitalia figured by McDunnough, 1926, pl. 3, fig. 10. Re-examination of the preparation of the male paratype referred to by Spieth confirms that there are small teeth on the lobes of the penis.



FIGS. 11–12. ♂ Genitalia, ventral, of 11, *Atopopus tarsalis* Eaton, type; 12, *Bleptus fasciatus* Eaton, type. (Scale = 0·2 mm.)

Cinygma mimus Eaton. See *Cinygmula*.

Cinygma par Eaton. See *Cinygmula*.

Cinygmula mimus (Eaton), 1885, p. 249 (as *Cinygma*).

LECTOTYPE ♂. Designated by Spieth, 1941, p. 89. Male genitalia figured by McDunnough, 1924, pl. 3, fig. 7.

Cinygmula par (Eaton), 1885, p. 249, pl. 65, fig. 5 (as *Cinygma*).

LECTOTYPE ♂. Designated by Spieth, 1941, p. 89, fig. 4.

Compsoneuria spectabilis Eaton, 1881, p. 23.

TYPE not traced in Leiden Museum (Lieftinck, i. l., x.1958).

Ecdyurus affinis Eaton. See *Heptagenia.*

Ecdyurus spp. See *Ecdyonurus.*

Ecdyonurus annulifer (Walker), 1860, p. 199, (as *Palingenia*).

HOLOTYPE ♀. Hindostan. Saunders, 68–3. *annulifera Wlk.*

Ecdyonurus helveticus (Eaton), 1883, pl. 24, fig. 46*a*; 1887, p. 282 (as *Ecdyurus*).

LECTOTYPE ♂. Designated by Kimmins, 1942, p. 125. Male genitalia figured by Kimmins, 1958, p. 230, figs. 10–12.

Ecdyonurus insignis (Eaton), 1870, p. 7 (as *Heptagenia*).

I have found no imagines of this species labelled "*insignis*" in the McLachlan collection which bore dates earlier than 1870. There is one subimago in the British Museum (Nat. Hist.), which would qualify as regards date and locality, were it not for the fact that the original description makes no mention of the subimaginal stage. This specimen is in glycerine and alcohol and the cork of the tube is labelled "*Heptagenia insignis ♂ Sub., Reading, vi.68. B. montana Hg. Syn.*"

There are, however, two pinned examples in the McLachlan collection, one of which might be considered in the search for the type. This is a male imago which was in his British collection. It bears no locality data, only a small, round label inscribed (probably by McLachlan) "*montan. Eaton*". It seems likely that he received examples from Eaton determined as *Baëtis montana* Hagen (*nec* Pictet), which were part of the series subsequently described as *Heptagenia insignis* Eaton (with *Baëtis montana* Hagen as synonym).

On these grounds I have decided to designate this McLachlan pinned example as LECTOTYPE of *Heptagenia insignis* Eaton.

LECTOTYPE ♂. *montan. Eaton* in McLachlan's writing?. B.M. 1938–674.

The other possibility is a female imago from Burton-on-Trent district (the Trent being one of the rivers mentioned in the original description) and I have selected this example as the ALLOTYPE.

LECTOALLOTYPE ♀. Staffs: Neighbourhood of Burton-on-Trent, mid.-Aug., 1869. R. McLachlan. B.M. 1938–674. Male genitalia figured by Kimmins, 1942*b*, p. 502, fig. 8.

Ecdyonurus italicus (Eaton), 1883, pl. 24, fig. 46*c* (as *Ecdyurus*).

LECTOTYPE ♂. Designated by Kimmins, 1942, p. 125. Male genitalia figured by Kimmins, 1958, p. 230, figs. 13–15. This species is now considered a synonym of *Ecdyonurus helveticus* (Eaton).

Ecdyonurus quaesitor (Eaton), 1883, pl. 24, fig. 46*b*; 1887, p. 286 (as variety of *Ecdyurus venosus* (Fabricius)).

I have been unable to trace any examples of this insect in McLachlan's collection, where most of Eaton's material was deposited. All I could discover was a large male *E. dispar* from the Pyrénées Orientales, over a label in Eaton's writing "*Ecdyurus longicauda v. quaesitor*". Apart from the fact that the specimen is not from the type locality, the pattern of the abdomen does not agree with the description, the lateral abdominal stripes being weak and obscure. The only Apennine specimens of *Ecdyonurus* in the McLachlan collection at the time of its purchase by the British Museum (Nat. Hist.) were over the label *forcipula* Pictet and were a mixture of that species and *E. helveticus* (Eaton). The TYPE must therefore be presumed lost.

Ecdyonurus zelleri (Eaton), 1883, p. 239; 1887, p. 286 (as *Ecdyurus*).

LECTOTYPE ♂. Designated by Kimmins, 1942, p. 219. Male genitalia figured by Kimmins, 1958, p. 232, figs. 20–23.

The genus ***EPEORUS***

Of the four European species described by Eaton, *E. alpicola* is clearly distinct from the other three in the form of the male genitalia. The penis-lobes are much less outspread and are only a little wider than the stem of the penis. In ventral view the membranous central area between the sclerites is much wider, and apically does not diverge in narrow arms. The other three species, *assimilis*, *torrentium* and *geminus* are closely related in genital structure. In *assimilis*, there is generally a small projection on the inner margin of the forceps towards the base and the penis-lobes are perhaps stouter and less out-turned. In *torrentium*, there is usually a small tooth on the apical margin of the forceps-base, near the base of each forceps. The penis-lobes are more outspread and narrower than in *assimilis*. In *geminus* (= *sylvicola* Ed.-Pictet), the penis-lobes are still narrower than in *torrentium*, there may be a small process toward the base of the forceps but none on the forceps-base itself.

It will be seen from the figures that these differences are not very evident and tend to intergrade and it may be necessary in the future to consider all three as synonymous or as subspecies. Further study in the field and of larvae is needed to settle these points.

Epeorus alpicola (Eaton), 1871, p. 148, pl. 6, fig. 19 (as *Heptagenia*).

(Text-fig. 13)

HOLOTYPE ♂ (in fluid). France, Les Contamines, 24.vii.1870. A. E. Eaton. 1871–11.

Epeorus assimilis Eaton, 1886, p. 239.

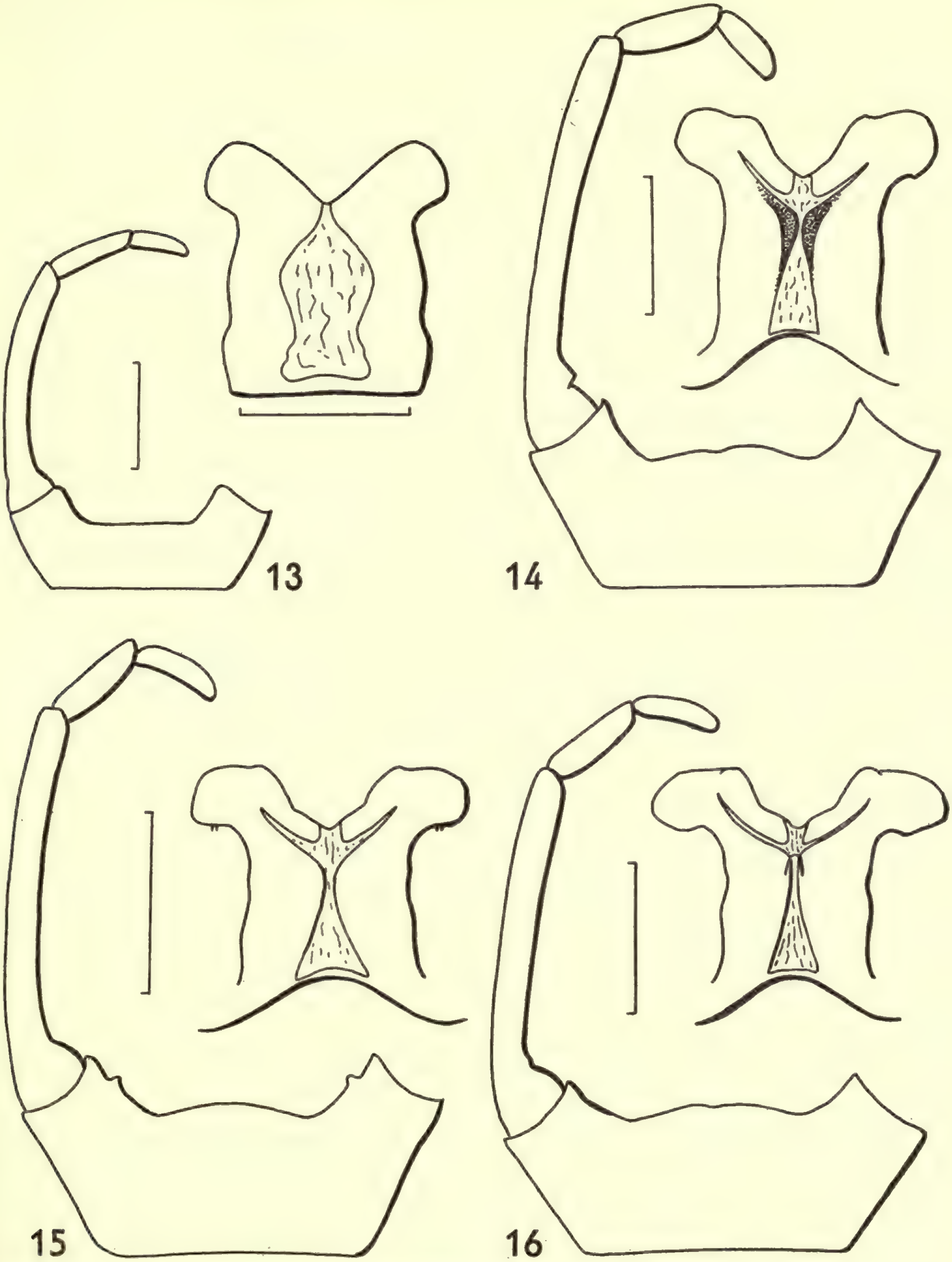
(Text-fig. 14)

LECTOTYPE ♂. Schwarzwald, 30.vii.1885. B.M. 1938–674. Epeorus assimilis Etn., det. A. E. Eaton.

Epeorus geminus Eaton, 1885, p. 238.

(Text-fig. 16)

LECTOTYPE ♂. Estrella, 4,242 ft., 7.vi.1880. Eaton, Portugal, 1880. B.M. 1938–674. Epeorus geminus Etn., det. A. E. Eaton. This species is now considered a synonym of *Epeorus sylvicola* (Ed.-Pictet).



FIGS. 13–16. ♂ Genitalia, ventral, of *Epeorus* spp. 13, *E. alpicola* (Eaton), type; 14, *E. assimilis* Eaton, paratype; 15, *E. torrentium* Eaton, paratype; 16, *E. geminus* Eaton, paratype. (Scale = 0·5 mm.)

Epeorus psi Eaton, 1885, p. 242.

Holotype ♂. In spirit, Mus. comp. Zool. Cambridge, Mass.

Epeorus torrentium Eaton, 1881, p. 26.

(Text-fig. 15)

Lectotype ♂. France, Tarascon, 25.viii.1880. B.M. 1938–674. Epeorus torrentium Etn., det. A. E. Eaton.

Heptagenia affinis (Eaton), 1883, pl. 24, fig. 46*a*; 1887, p. 293 (as *Ecdyurus*).

Lectotype ♂. Netherlands, Eaton, 1879. Arnhem, 26.viii.1879. Reuter, No. 2. B.M. 1938–674. Ecdyurus affinis Etn., det. A. E. Eaton.

Heptagenia alpicola Eaton. See *Epeorus*.

Heptagenia borealis Eaton. See *Metretopus* (Ametropodidae).

Heptagenia cupulata Eaton. See *Paegniodes*.

Heptagenia elegantula (Eaton), 1885, p. 253 (as *Rhithrogena*).

Holotype not traced but probably in Mus. comp. Zool. Cambridge, Mass. (W. L. Brown, Jr., i. l., 23.x.1958). Two paratypes from Arizona in British Museum (Nat. Hist.).

Heptagenia gallica Eaton, 1883, pl. 23, fig. 45; 1885, p. 272.

Lectotype ♂. Toulouse, A. E. Eaton. 3.ix.80. B.M. 1938–674. Heptagenia gallica Etn., det. A. E. Eaton. Lectoallotype ♀. Data as above except date, 17.viii.80. This species is now considered a synonym of *Heptagenia caerulans* Rostock.

Heptagenia insignis Eaton. See *Ecdyonurus*.

Heptagenia manifesta (Eaton), 1885, p. 253 (as *Rhithrogena*).

This name was proposed by Eaton for *Baëtis debilis* Walsh, 1862, *nec* Walker, 1853. Walsh's collection was destroyed by fire in Chicago in 1871 and the species has not since been recognized.

Heptagenia nivata Eaton. See *Rhithrogena*.

Heptagenia volitans Eaton, 1870, p. 7.

Lectotype ♂. Of the original series I have been able to trace only one male, presented to the British Museum (Nat. Hist.) in 1868. This is preserved in glycerine and is labelled as follows: *Reading, 23.v.68. 68–124. Heptagenia volitans.* Male genitalia figured by Kimmins 1942*a*, p. 46, fig. 27F (as *H. fuscogrisea*) with which species it is now considered synonymous.

Iron longimanus Eaton, 1883, pls. 23–24, fig. 44; 1885, p. 245; 1887, pl. 65, fig. 2.

Lectotype ♂. Designated by Spieth, 1941, p. 88. Male genitalia figured by Traver, 1935, p. 399, fig. 105.

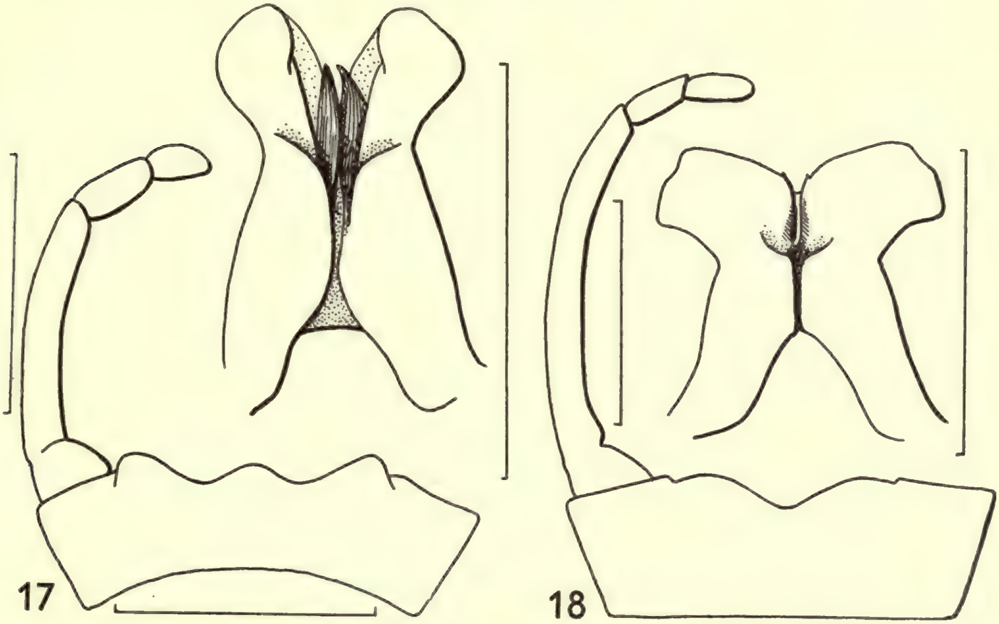
Iron nitidus Eaton. See *Ironodes.*

Iron vitrea (Walker), 1853, p. 555 (as *Palingenia*).

HOLOTYPE ♀ (subimago). Discussed by Spieth, 1940, p. 330.

Ironodes geminatus (Eaton), 1885, p. 250 (as *Cinygma*).

LECTOTYPE ♀. Designated by Spieth, 1941, p. 90.



FIGS. 17–18. ♂ Genitalia, ventral (with penis-lobes more enlarged) of *Heptagenia* spp. 17, *H. affinis* (Eaton), paratype ; 18, *H. gallica* Eaton, paratype. (Scale = 0·5 mm.)

Ironodes nitidus (Eaton), 1885, p. 246, pl. 65, fig. 3 (as *Iron*).

LECTOTYPE ♂. Designated by Spieth, 1941, p. 90, fig. 3.

Paegniodes cupulatus (Eaton), 1871, p. 138, pl. 6, figs. 14, 14*a* (as *Heptagenia*).

LECTOTYPE ♂. N. China, 54–8. *Heptagenia cupulata Eaton* (*Type*). LECTO-ALLOTYPE ♀. N. China, 54–42. *Heptagenia cupulata Eaton* (*Type*). The lectotype has one hind wing detached and the allotype lacks head and prothorax.

Rhithrogena alpestris Eaton, 1885, p. 255, pl. 24, fig. 43*a*.

(Text-fig. 25)

LECTOTYPE ♂. Savoy, Eaton, 1879. Dranse de Biot, Charbonnière, 4,300–4,800 ft., 2.ix.1879. B.M. 1938–674. Rhithrogena alpestris Etn., det. A. E. Eaton.

Rhithrogena elegantula Eaton. See *Heptagenia.*

Rhithrogena fusca (Walker), 1853, p. 568 (as *Baëtis*). See *Rh. jejuna* Eaton.

Rhithrogena germanica Eaton, 1885, p. 260.

HOLOTYPE ♂ probably in the Berne Museum.

Rhithrogena hageni Eaton, 1885, p. 253 (n.n. for *Heptagenia brunnea* Hagen, ♂).

HOLOTYPE of *Heptagenia brunnea* Hagen in Mus. comp. Zool. Cambridge, Mass.

Rhithrogena hybrida Eaton; 1885, p. 256.

(Text-fig. 21)

LECTOTYPE ♂. Savoy, Eaton, 1879. Dranse de Biot, Charbonnière, 4,700 ft., 12.viii.1879. B.M. 1938–674. Rhithrogena hybrida Etn., det. A. E. Eaton. The male genitalia of this species differ considerably from the figure given by Schoenemund, 1930, p. 30, fig. 41, particularly in the form of the penis-lobes. The general structure agrees very closely with that of *Rh. nivata* (Eaton). From the limited material available, *R. hybrida* appears to be smaller and may be considered as a subspecies of *R. nivata*.

Rhithrogena jejuna Eaton, 1885, p. 252.

LECTOTYPE ♂. Designated by Spieth, 1940, p. 334. LECTOALLOTYPE ♀. Hudson's Bay, 44–17. *Baëtis fusca Walker* (*Type*), in Eaton's writing.

Rhithrogena manifesta Eaton. See *Heptagenia*.

Rhithrogena nivata (Eaton), 1871, p. 137, pl. 6, fig. 10 (as *Heptagenia*).

LECTOTYPE ♂ (in fluid). Val de Triente, Barberine, 3,700 ft., 17.viii.1870. A. E. Eaton. *Rhithrogena nivata Etn Type*, in Eaton's writing. B.M. 1938–674.

Stenonema canadense (Walker), 1853, p. 569 (as *Baëtis*).

LECTOTYPE ♂. Designated by Spieth, 1940, p. 333. Male genitalia figured by Traver, 1935, p. 304, fig. 91.

Stenonema luridipennis (Walker, *nec* Burmeister), 1853, p. 563 (as *Baëtis*).

Spieth, 1940, p. 337, has identified Walker's specimen from St. Martin's Falls, Albany River, Hudson's Bay as *Stenonema fusca* Clemens.

Stenonema tessellatum (Walker), 1853, p. 566 (as *Baëtis*).

HOLOTYPE ♀ (subimago). Placed by Spieth, 1940, p. 336, as a synonym of *Stenonema vicarium* (Walker).

Stenonema vicarium (Walker), 1853, p. 565 (as *Baëtis*).

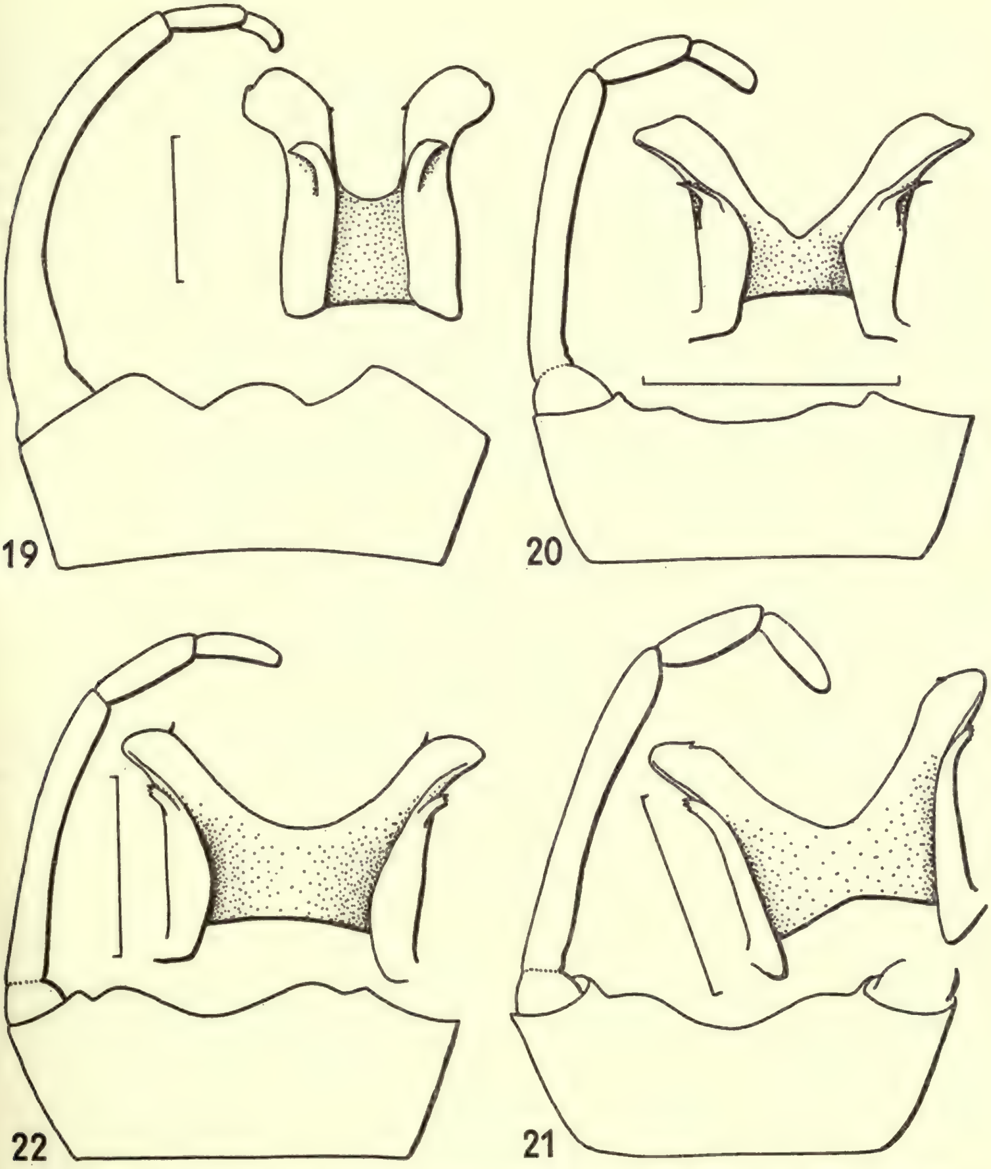
HOLOTYPE ♂. Discussed by Spieth, 1940, p. 336.

Thalerosphyrus torridus (Walker), 1853, p. 571 (as *Baëtis*).

HOLOTYPE ♀. Phil. Is. 45–49. *Baëtis torridus Walker* (*Type*), in Eaton's writing. The greater part of the wings are now missing, as are the cerci and hind legs.

Thalerosphyrus determinatus (Walker), 1853, p. 567 (as *Baëtis*).

HOLOTYPE ♂. Java. 46–108. *Baëtis determinatus Walker* (*Type*), in Eaton's writing. Most of the abdomen is missing and only one leg now remains.



FIGS. 19–22. ♂ Genitalia, ventral, of *Paegniodes* and *Rhithrogena* spp. 19, *Paegniodes cupulatus* (Eaton), type; 20, *Rhithrogena alpestris* Eaton, paratype; 21, *R. hybrida* Eaton, paratype; 22, *R. nivata* (Eaton), type. (Scale = 0·5 mm.)

Family AMETROPODIDAE

Metretopus borealis (Eaton), 1871, p. 137 (as *Heptagenia*).

HOLOTYPE ♂ in Dale collection, University Museum, Oxford.

Metretopus norvegicus Eaton, 1901, p. 254.

The collection, made by Herr E. Strand, from which this species was described, could not be found in the Oslo Museum (Brekke, 1938, p. 60, footnote). It is possible that it may be in either the Zoological Museum, Berlin or in the Entomological Institute, Dahlem. There were no examples of this species in the McLachlan collection, but in the British Museum (Nat. Hist.), there is a microscope slide of the male genitalia, cerci and legs from one of the type series. As this preparation was made by Eaton and was undoubtedly used by him in making his description, I propose to designate it as the LECTOTYPE of *M. norvegicus* Eaton.

LECTOTYPE ♂. Norway, Aal, ix.1900, E. Strand. *Metretopus norvegicus ♂ im.* Microscope preparation of legs, genitalia and cerci.

M. norvegicus is now considered a synonym of *M. borealis* (Eaton).

Siphloplecton basalis Walker), 1853, p. 565 (as *Baëtis*).

HOLOTYPE ♂. Discussed by Spieth, 1940, p. 332. Male genitalia figured by Traver, 1935, p. 441, fig. 115.

Family BAËTIDAE

Baëtis albivitta Walker. See *Hexagenia* (Ephemeridae).

Baëtis amnicus Eaton, 1871, p. 117, pl. 5, figs. 24, 24*a*.

(Text-fig. 23)

LECTOTYPE ♂. Barberine, 17.vii.70. A. E. Eaton. *Baëtis amnicus Etn.*, (*Type*). 1871–11. (In fluid collection.) This species is now considered a synonym of *B. alpinus* Pictet.

Baëtis angulatus Walker. See *Hexagenia* (Ephemeridae).

Baëtis annulatus Walker. See *Siphlonurus*.

Baëtis atrebatinus Eaton, 1870, p. 4.

LECTOTYPE ♂ (Imago). In tube of glycerine, with ♂ subimago. Data on cork, in Eaton's writing, *Baëtis atrebatinus. Reading, x.19.68.* B.M. register No. 68–124.

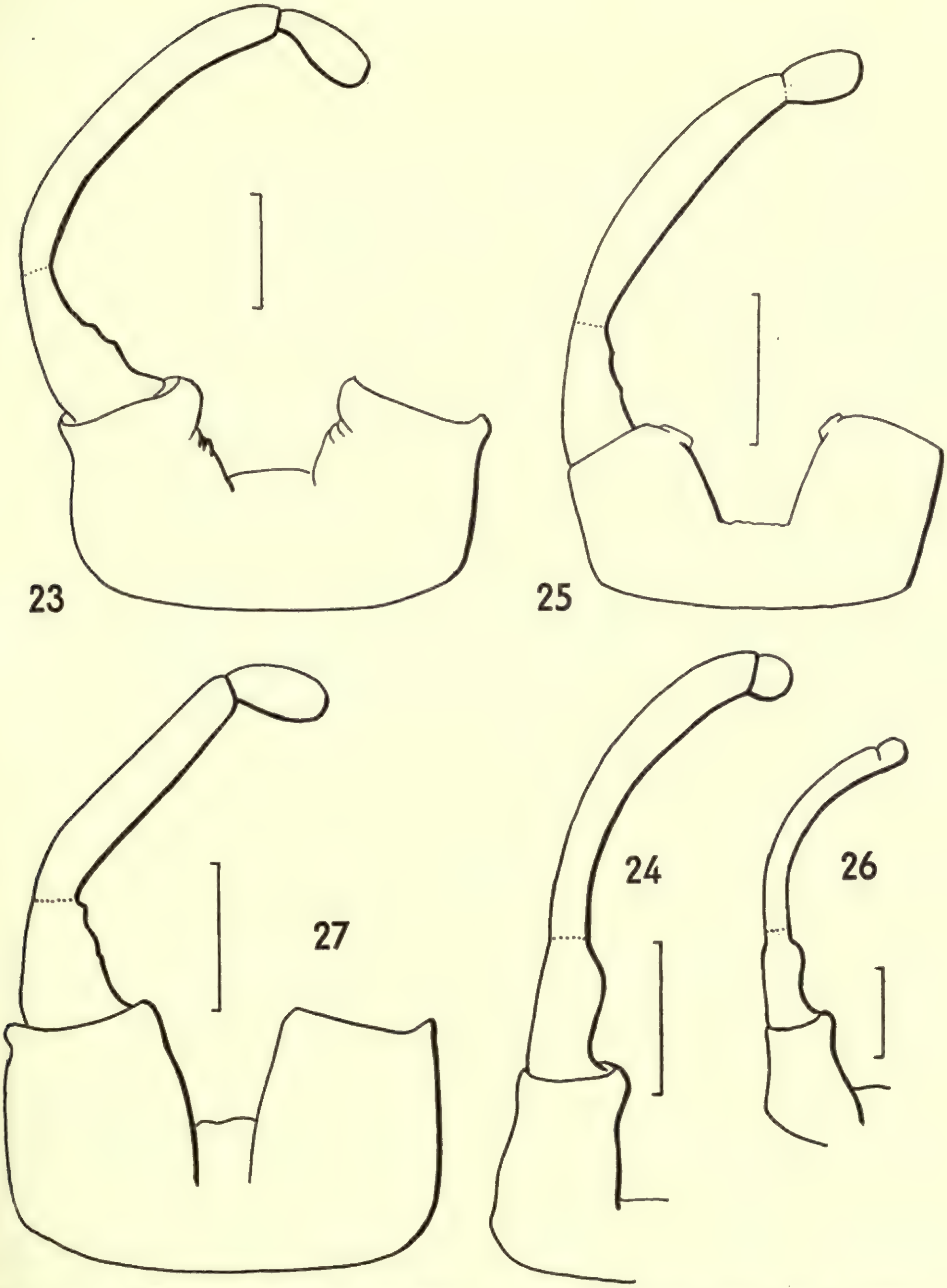
Baëtis basalis Walker. See *Siphloplecton* (Ametropodidae).

Baëtis bocagii Eaton, 1885, p. 162, pl. 64, fig. 13.

(Text-fig. 24)

HOLOTYPE ♂. Eaton, Portugal, 1880. Lisbon. B.M. 1938–674. *Baëtis bocagii.*

Eaton gives descriptions of the living subimago and male imago. There is in the McLachlan collection only the single type, which one presumes was bred from



FIGS. 23–27. ♂ Forceps, ventral, of *Baëtis* spp. 23, *B. amnicus* Eaton, type; 24, *B. bocagii* Eaton, type; 25, *B. finitimus* Eaton, type; 26, *B. gemellus* Eaton, type; 27, *B. nubecularis* Eaton, example determined by Eaton. (Scale = 0·2 mm.)

the subimago. The male genitalia of the type appear to be identical with that of *Baëtis rhodani* (Pictet), there is little difference in the colouring as detailed by Eaton and I therefore transfer *bocagii* to the synonymy of *B. rhodani* (Pictet) (**Syn. nov.**).

Baëtis buceratus Eaton, 1870, p. 5.

I have been able to trace only one example referable to the type series, a male presented to the British Museum (Nat. Hist.) by Eaton in 1868.

LECTOTYPE ♂ (in glycerine). Data on cork, *Baëtis buceratus. Reading.* Label on tube, 68–124. Male clasper figured by Kimmins, 1942*a*, p. 34, fig. 15B.

Baëtis canadense Walker. See *Stenonema* (Heptageniidae).

Baëtis debilis Walker. See *Paraleptophlebia.*

Baëtis determinatus Walker. See *Thalerosphyrus* (Heptageniidae).

Baëtis feminalis Eaton, 1885, p. 171.

TYPES in Hagen collection, Mus. comp. Zool. Cambridge, Mass.

Baëtis finitimus Eaton, 1871, p. 113.

(Text-fig. 25)

LECTOTYPE ♂, LECTOALLOTYPE ♀ (in 2% formaldehyde solution). France, Les Contamines, 24.vii.70. A. E. Eaton. *Baëtis finitimus Eaton* (*Type*), ♂, ♀. 1871–11. This species is now considered a synonym of *B. melanonyx* Pictet.

Baëtis fusca Walker. See *Rhithrogena.*

Baëtis fuscata Walker. See *Ephemerella.*

Baëtis gemellus Eaton, 1885, p. 163.

(Text-fig. 26)

LECTOTYPE ♂. Helvetia, Eaton, 1879. Champéry, 4,000 ft., 13.viii.1879. B.M. 1938–674. Baëtis gemellus Etn., det. A. E. Eaton. I consider that this species should be placed in the synonymy of *B. rhodani* Pictet (**Syn. nov.**).

Baëtis hageni Eaton, 1885, p. 169 (n.n. for *Baëtis unicolor* (Hagen)).

TYPE of *Baëtis unicolor* Hagen probably in Mus. comp. Zool., Cambridge, Mass. Eaton proposed the name *hageni* under the impression that *Cloë unicolor* Hagen, 1861, was a homonym of *Cloëon unicolore* Curtis, 1834, but Hagen's name is generally used by American authors.

Baëtis ignota Walker. See *Isonychia.*

Baëtis invaria Walker. See *Ephemerella.*

Baëtis luridipennis Walker. See *Stenonema.*

Baëtis nubecularis Eaton, 1898, p. 265.

(Text-fig. 27)

HOLOTYPE ♂. Lac de Joux district, 1898, *nubecularis Eaton, Type,* in Eaton's writing. B.M. 1938–674.

Baëtis pictus Eaton. See *Callibaetis.*

Baëtis remota Walker. See *Coloburiscus* (Isonychiidae).

Baëtis salvini Eaton, 1885, p. 170, pl. 16, fig. 29*a*.

LECTOTYPE ♂. Irazu, 6,000–7,000 ft., H. Rogers. B.M. 1938–674. Baëtis salvini Etn., det. A. E. Eaton. LECTOALLOTYPE ♀. Data as above. Male genitalia figured by Kimmins, 1934, p. 348, fig. 13. The types of this species were stated by Eaton to be in the Godman and Salvin collection, but they were not in that collection when it became the property of the B.M. (N.H.). They came to the Museum as part of the McLachlan collection. Possibly they were returned by Eaton to McLachlan in error.

Baëtis scambus Eaton, 1870, p. 3.

The TYPE of this species appears to be missing, unless a pair in the British Museum (Nat. Hist.) were wrongly dated by Eaton. His paper containing the original description was read before the Entomological Society of London on 3rd January, 1870 and the specimens are dated vi.1870. They are from Ashbourne, the typical locality, and as there is no definite evidence that they were wrongly dated by Eaton, one cannot make them anything but topotypes.

TOPOTYPES ♂, ♀. *Ashbourne, vi.1870. Baetis scambus.* 71–11. Male claspers figured by Kimmins, 1942*a*, p. 35, fig. 17S.

Baëtis scita Walker. See *Atalophlebia.*

Baëtis taprobanes Walker. See *Atalophlebia.*

Baëtis tenax Eaton, 1870, p. 5.

The same circumstances apply as in the case of *B. scambus* Eaton.

TOPOTYPE ♂. *Ashbourne, v.1870. Baëtis tenax ♂.* 1871–11. Male clasper figured by Kimmins, 1942*a*, p. 35, fig. 16T.

Baëtis tesselata Walker. See *Stenonema.*

Baëtis torridus Walker. See *Thalerosphyrus* (Heptageniidae).

Baëtis venustulus Eaton, 1885, p. 160, pl. 64, fig. 19.

LECTOTYPE ♂. Helvetia, Eaton, 1879. Geneva, Rhone, 1,220 ft., 25.viii.1879. B.M. 1938–674. Baëtis venustulus Etn., det. A. E. Eaton.

Baëtis vicaria Walker. See *Stenonema.*

Callibaetis hageni Eaton, 1883, p. 192, pl. 16, fig. 28*a*.

Dr. W. L. Brown, Jr., writes me that there is in the Mus. comp. Zool., Cambridge, Mass., a specimen which was seen by Eaton, but which is without a standard red type label.

Callibaëtis montanus Eaton, p. 196, pl. 16, fig. 28*d*.

LECTOTYPE ♀. Aceytuno, 5,100 ft., B.M. 1938–674. Callibaëtis montanus Etn., det. A. E. Eaton.

Callibaëtis pictus (Eaton), 1871, p. 122, pl. 5, fig. 27 (as *Baëtis*).

LECTOTYPE ♂. Designated by Spieth, 1941, p. 98. LECTOALLOTYPE ♀. 17/7. Bosque Co., Texas, Belfrage. *Baëtis pictus Etn.* B.M. 1938–674.

Centroptilum algiricum Eaton, 1899*a*, p. 4.

LECTOTYPE ♂. Mirabeau, 5.xi.92, ♂. B.M. 1938–674. *Centroptilum algiricum Etn.*, ♂ *Type*, D. E. Kimmins det. 1950. LECTOALLOTYPE ♀. Tissadourt, 4.xi.92, ♀. B.M. 1938–674. *Centroptilum algiricum Etn.*, ♀ *Allotype*, D. E. Kimmins det. 1950. The allotype ♀ lacks abdomen and left fore wing.

Centroptilum lacustre Eaton, 1885, p. 176.

(Text-fig. 28)

LECTOTYPE ♂. Pallanza, 18.vii.92. Eaton, 1892. B.M. 1938–674. *Centroptilum lacustre Etn.* LECTOALLOTYPE ♂. Details as above.

Centroptilum nemorale Eaton, 1885, p. 177.

(Text-fig. 29)

HOLOTYPE ♂. Apennino Pistojese, Eaton, 1882. 26.vii.82. B.M. 1938–674. *Centroptilum nemorale Etn.*

Centroptilum pennulatum Eaton, 1870, p. 2.

LECTOTYPE ♂ (in glycerine). Data on cork, in Eaton's writing, *Baëtis penulata. Reading, Grazley, Near 3 mile*†, *18.x.68.* 68–124. Male genitalia figured by Kimmins, 1942*a*, p. 37, fig. 19P.

Centroptilum poëyi Eaton, 1885, p. 179.

TYPE in Mus. comp. Zool. Cambridge, Mass.

Centroptilum pulchrum Eaton, 1885, p. 177.

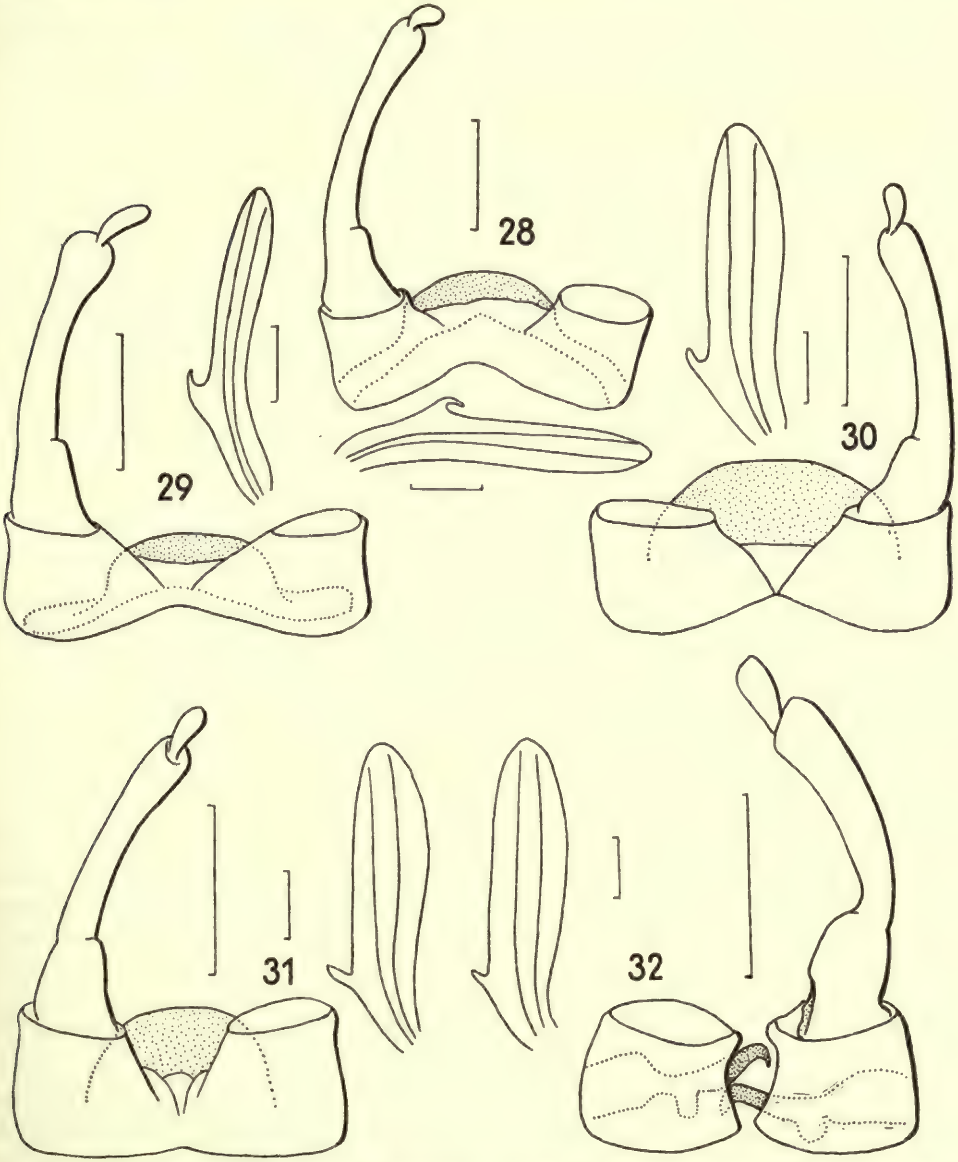
(Text-fig. 30)

LECTOTYPE ♂. Toulouse, Garonne, 21.viii.80. B.M. 1938–674. Centroptilum pulchrum Etn., det. A. E. Eaton. LECTOALLOTYPE ♀. Details as above.

Centroptilum stenopteryx Eaton, 1871, p. 110, pl. 6, figs. 15, 15*a*.

(Text-fig. 31)

LECTOTYPE ♂. McL. type-label (pink). 7.4.59. Zeller. *Centroptilum stenopteryx Etn.*, in McLachlan's writing. LECTOALLOTYPE ♀ (subimago). Data as above but lacking date label.



FIGS. 28–32. ♂ Genitalia, ventral and hind wing of *Centroptilum* spp. 28, *C. lacustre* Eaton, type; 29, *C. nemorale* Eaton, type; 30, *C. pulchrum* Eaton, type; 31, *C. stenopteryx* Eaton, type; 32, *C. algiricum* Eaton, type. (Scale = 0·2 mm.)

Cloëon bimaculatum Eaton. See *Procloëon.*

Cloëon concinnum Eaton. See *Procloëon.*

Cloëon debilis Walker. See *Procloëon.*

Cloëon simile Eaton, 1870, p. 2.

LECTOTYPE ♂ (in glycerine). Data on cork. *Cloëon simile. Clumber Park, Notts. ix–x.68.* 68–124. Male genitalia figured by Kimmins, 1942*a*, p. 39, fig. 21S. The lectotype has been transferred to a new tube, the original one having developed a crack.

Cloëon sinense (Walker), 1853, p. 584 (as *Caenis*).

HOLOTYPE ♂. China. 45–65. *Caenis sinensis* (*Type*) *Walker,* in Eaton's writing. The type now consists of a head and a portion of the thorax. Eaton wrote in the Departmental copy of Walker's List, " Perhaps identical with *Baëtis* (*Cloëon*) *diptera.* So far as the investing mould permits an examination, no structural differences are apparent between them." Since the type is no longer of any value in identifying Walker's species, I propose to adopt Eaton's supposition and place *sinensis* Walker as a synonym of *Cloëon dipterum* (L.). (**Syn. nov.**)

Procloëon bimaculatum (Eaton), 1884, pl. 17, fig. 31*d* ; 1885, p. 182 (as *Cloëon*). (Text-fig. 35)

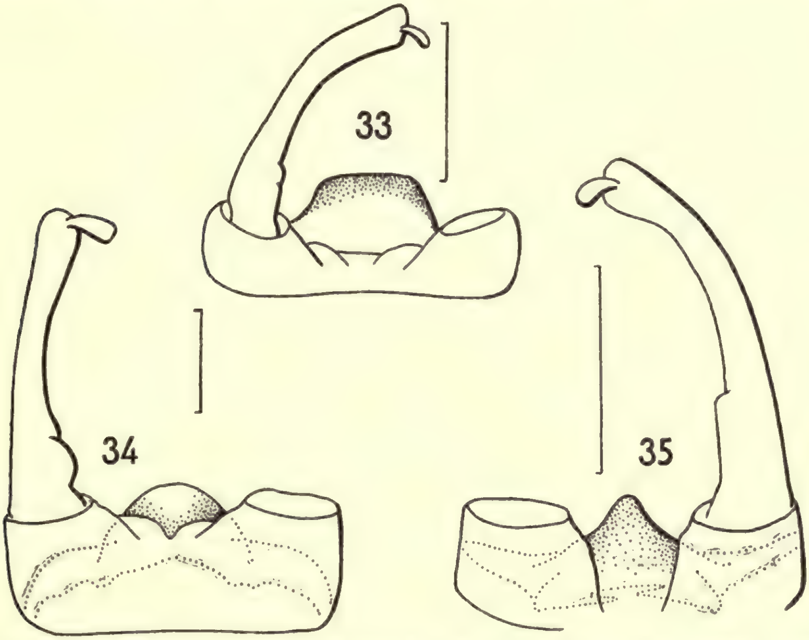
LECTOTYPE ♀. Designated by Kimmins, 1947, p. 93. LECTOALLOTYPE ♂. Ceylon, Thwaites. B.M. 1938–674. Cloëon bimaculatum Etn., det. A. E. Eaton. Contrary to Eaton's description, the lectoallotype male does not have the pigmented pterostigmatic spot. This specimen is the only male in the type series and it is very strange that Eaton should have included this female character in the male diagnosis. As mentioned in my 1947 paper, I took numerous males and females of this species near Calcutta. The males agree in genital structure with the allotype and all have the colourless pterostigma.

Procloëon concinnum (Eaton), 1885, p. 187 (as *Cloëon*).

LECTOTYPE ♂. Eaton, Portugal, 1880. Porcalhota, near Cintra, 1.vi.80. B.M. 1938–674. Cloëon concinnum Etn., det. A. E. Eaton. LECTOALLOTYPE ♀. Data as above. The length of the apparent basal segment of the hind tarsus in relation to the second segment (3 : 1) indicates that this species should be transferred to the genus *Procloëon.*

Procloëon debilis (Walker), 1860, p. 199 (as *Cloëon*). (Text-fig. 33)

A rather strange situation has arisen regarding the type of this species. Walker's description is very brief ; no indication is given of either the sex or the number of specimens before him. In his 1871 monograph (p. 14), Eaton lists the Ephemeroptera types of Walker's 1860 paper in the British Museum (Nat. Hist.) collection, and of *Cloëon debilis* he remarks " 1 ♀ im.", and transfers it to the genus *Baëtis.* His examination appears to have been rather perfunctory or else he made only very brief notes on the type, since on p. 112 of the 1871 monograph he makes no attempt to supplement Walker's very brief account, giving only a slightly *shortened* version of the latin diagnosis, adding " This species can only be identified by the type ". Such a remark suggests that he had not at that time seen the type, although in the introduction to this monograph he acknowledges that he had had unlimited access to the B.M. collections. He certainly did at some time examine the type, since Walker's MSS. label " *debilis* "bears the additional words " *Cloëon* (*Type*) " in Eaton's writing.



FIGS. 33–35. ♂ Genitalia, ventral, of *Procloëon* spp. 33, *P. debilis* (Walker), allotype ; 34, *P. concinnum* (Eaton), paratype ; 35, *P. bimaculatum* (Eaton), allotype. (Scale = 0·2 mm.)

Above Walker's label are now *two* specimens, both gummed to the same strip of card, rather moulded but, from the appearance of the gum, mounted at the same time. The style of mounting of the specimens is identical with that of the type of *Potamanthus annulifer* Walker, also from Hindostan, and neither the style of the mounting nor the state of the gum suggests that the second specimen has been added since Eaton studied the Walker types. At the tip of the card is a female imago, apices of the wings missing, and nearer the pin is a male imago, which would agree quite as well with Walker's description as does the female (better in fact, as it is in better condition).

If there were originally two specimens, one wonders why Eaton makes no reference to the second one. He may have considered the female to be the type, but this still does not explain why he makes no reference to the second specimen. It is my belief that there were two specimens and that Eaton started to make notes on them and was interrupted and on his next visit to the Museum forgot to complete them. When he later came to write up his notes, his memory must have let him down and he assumed that there was only the female imago, an error which was perpetuated in the 1884 monograph.

Examination of these two specimens shows that Eaton was incorrect in assigning *debilis* to the genus *Baëtis*, as the marginal intercalaries are single, not paired. This fact also supports my theory that his original examination was rather brief and possibly interrupted. The hind tarsus of the male has the apparent basal segment three times as long as the second and I am therefore transferring Walker's *debilis* to the genus *Procloëon*. *Cloëon debilis* Walker, 1860, having been removed from the genus *Baëtis*, is no longer a homonym of *Baëtis debilis* Walker, 1853.

I therefore consider the types of *Procloëon debilis* (Walker) to be as follows: LECTOTYPE ♀. Designated by Eaton, 1871, p. 14. Hindostan, Saunders, 68–3. *debilis Wlk.*, in Walker's writing, with Eaton's addition, *Cloëon* (*Type*). LECTO-ALLOTYPE ♂. On same card as lectotype ♀.

Family LEPTOPHLEBIIDAE

Adenophlebia auriculata (Eaton), 1871, pl. 83, pl. 4, figs. 24, 24*a–b* (as *Leptophlebia*).

(Text-fig. 36)

LECTOTYPE ♂. McL. type-label (pink). Graham's Town. *Leptophlebia auriculata Etn.*, in McLachlan's writing. B.M. 1938–674. Doubtfully distinct from *A. dislocans* (Walker).

Adenophlebia dislocans (Walker), 1860, p. 198 (as *Ephemera*).

HOLOTYPE ♀. Cape. Saunders, 68–3. *Ephemera dislocans* (*Type*) *Walker*, in Eaton's writing. One hind wing mounted between cover-glasses by Eaton.

Aprionyx tabularis (Eaton), 1884, p. 91, pl. 10, fig. 16*h* (as *Atalophlebia*).

The HOLOTYPE of this species, said to be " in spirits ", has not been traced. Eaton does not indicate in whose collection it was housed.

Atalophlebia australis (Walker), 1853, p. 538 (as *Ephemera*).

LECTOTYPE ♂. Designated by Tillyard, 1934, p. 13, pl. 2, figs. 7–8. Tillyard also designated a female in his own collection as ALLOTYPE. This specimen does not appear to have been included in that part of his collection which was bequeathed to the British Museum (Nat. Hist.), and is probably in Canberra.

Atalophebia chilensis Eaton, 1884, p. 91, pl. 10, fig. 16*g*.

LECTOTYPE ♂. Chili, Reed. B.M. 1938–674. Atalophlebia chilensis Etn., det. A. E. Eaton. Male genitalia figured by Demoulin, 1955*a*, p. 2, fig. 1*a*.

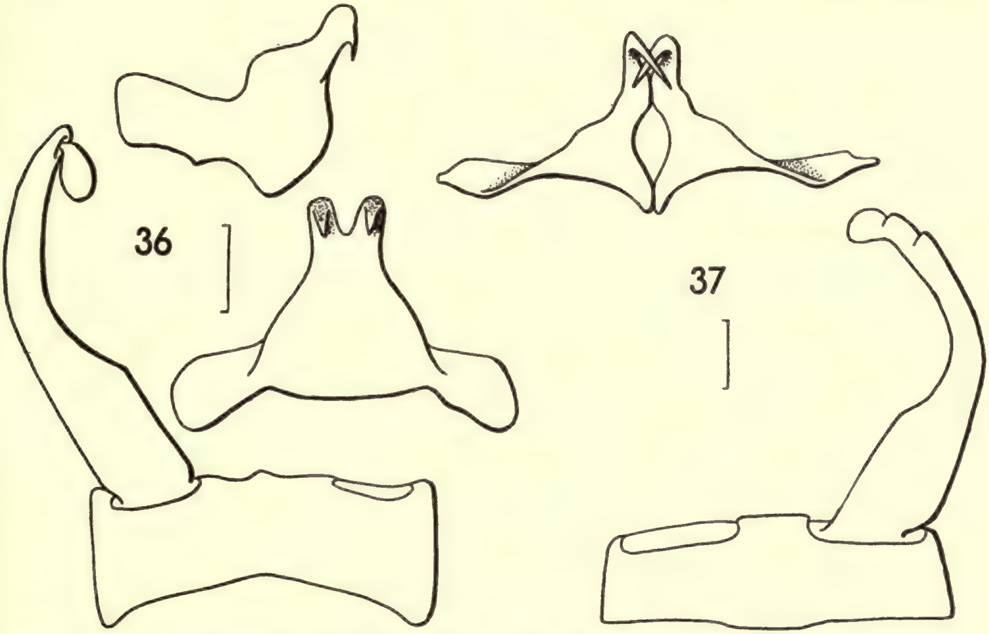
Atalophlebia dentata (Eaton), 1871, p. 80, pl. 4, figs. 18, 18*a–d* (as *Leptophlebia*).

(Text-fig. 38)

LECTOTYPE ♂. N. Zeal. 54–4. *Leptophlebia dentata Eaton*, in Eaton's writing. LECTOALLOTYPE ♀. Data as above.

Atalophlebia inconspicua (Eaton), 1871, p. 79, pl. 4, figs. 17, 17*a–b* (as *Leptophlebia*).

Five male SYNTYPES from Adelaide in the Hope Department, University Museum, Oxford.



FIGS. 36–37. ♂ Genitalia, ventral, of 36, *Adenophlebia auriculata* (Eaton), type (with penis-lobes in side and ventral view); 37, *Atalophlebia taprobanes* (Walker), type. (Scale = 0·2 mm.)

Atalophlebia nodularis (Eaton), 1871, p. 81, pl. 4, figs. 20, 20*a–c* (as *Leptophlebia*).

(Text-fig. 41)

LECTOTYPE ♂. McL. type-label (pink). Christchurch, N.Z., Fereday. *Leptophlebia nodularis Etn.*, in McLachlan's writing. LECTOALLOTYPE ♀. Data as above.

Atalophlebia scita (Walker), 1853, p. 570 (as *Baëtis*).

(Text-fig. 40)

Only one of the original two specimens can now be traced and this (lacking head) is designated as LECTOTYPE ♂. N. Zeal. 42–55. *Baëtis scita* (*Type*) *Walker*, in Eaton's writing.

Atalophlebia taprobanes (Walker), 1853, p. 567 (as *Baëtis*).

(Text-fig. 37)

HOLOTYPE ♂. Ceylon, 52–62. *Baëtis taprobanes* (*Type*) *Walker*, in Eaton's writing. In the figure, the lobes of the penis are convergent, with the hooks overlapping. In a paratype of *A. annulatus* (Hagen) they are divergent but capable of folding inwards as in *A. taprobanes*, and it seems not unlikely that *annulatus* will prove to be a synonym of *taprobanes*.

Atalophlebia versicolor Eaton, 1899, p 286, pl. 10, figs. 2*a–b*.

(Text-fig. 39)

LECTOTYPE ♂. 41. Wellington, Hudson. B.M. 1938–674. Atalophlebia versicolor Etn., det. A. E. Eaton.

Blasturus gravastellus Eaton. See *Leptophlebia*.

Calliarcys humilis Eaton, 1881, p. 21.

(Text-fig. 42)

LECTOTYPE ♂. Foia, 21.v.80. Eaton, Portugal, 1880. B.M. 1938–674. Calliarcys humilis Etn., det. A. E. Eaton.

Choroterpes exigua Eaton, 1892*a*, p. 189.

(Text-fig. 44)

LECTOTYPE ♂. McL. type-label (pink). Tenasserim Valley. *Choroterpes exiguus*, in Eaton's writing. B.M. 1938–674.

Choroterpes inornata Eaton, 1892*b*, p. 6.

LECTOTYPE ♂. Designated by Kimmins, 1934, p. 340, fig. 2.

Choroterpes lusitanica Eaton, 1881, p. 194.

(Text-fig. 45)

LECTOTYPE ♂. Aldea do Neves, 10.v.80. Eaton, Portugal, 1880. B.M. 1938–674. Now considered a synonym of *Choroterpes picteti* (Eaton).

Choroterpes nervosa Eaton. See *Thraulodes*.

Choroterpes picteti (Eaton), 1871, p. 87 (as *Leptophlebia*).

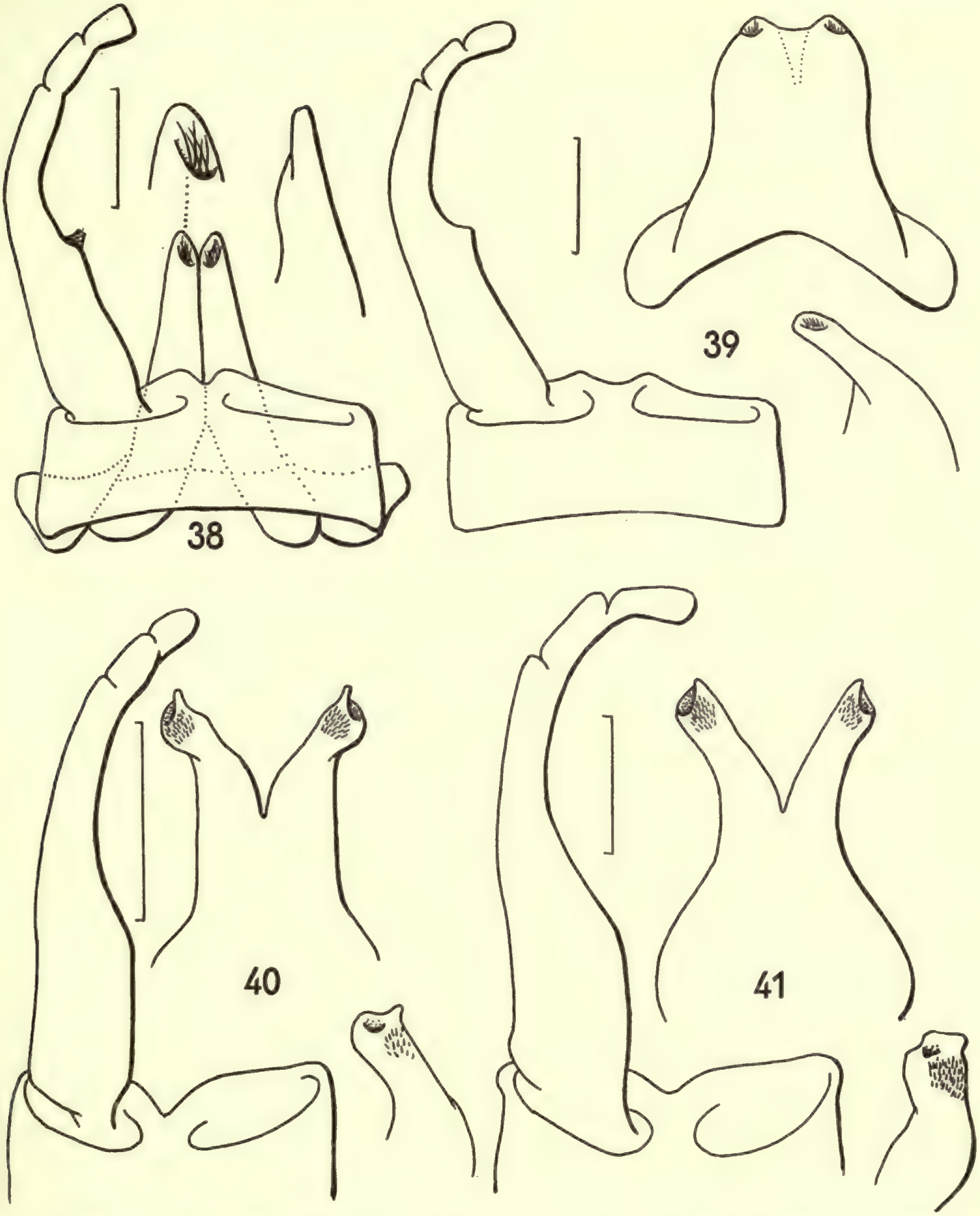
TYPE possibly in the Pictet collection, Geneva.

Choroterpides exiguus (Eaton), 1884, p. 108, pl. 13, fig. 20*2 (as *Thraulus*).

TYPE not traced in Leiden Museum (Lieftinck, i. l., x.1958).

Deleatidium furcifera (Eaton), 1871, p. 79 (as *Leptophlebia*).

TYPE in National Museum of Victoria, Melbourne. Nat. Mus. Type Registration No. 470. Mr. A. Neboiss writes " it is badly damaged, with right anterior wing and tip of abdomen missing ; part of thorax is also damaged."



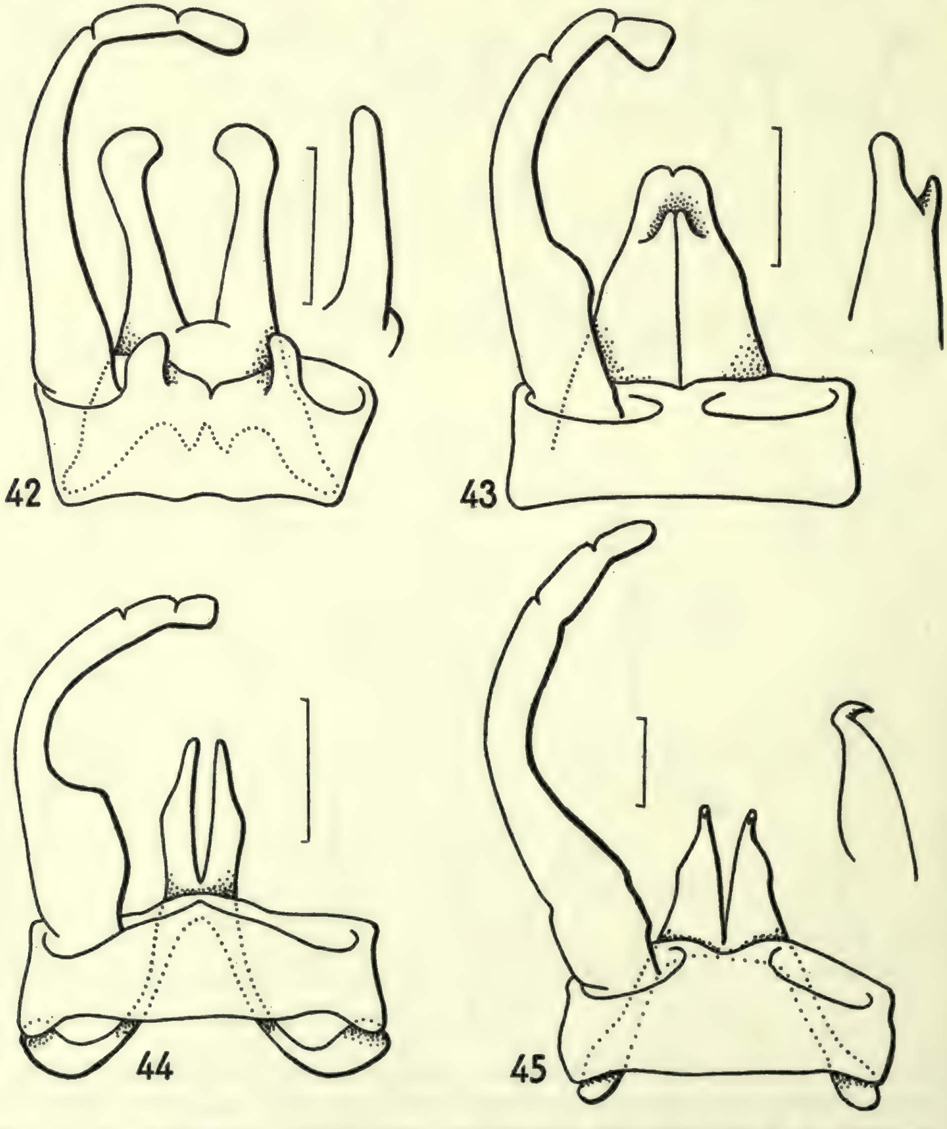
Figs. 38–41. ♂ Genitalia, ventral (with penis-lobes in side view also) of *Atalophlebia* spp. 38, *A. dentata* (Eaton), paratype; 39, *A. versicolor* Eaton, type; 40, *A. scita* (Walker), type; 41, *A. nodularis* (Eaton), type. (Scale = 0·2 mm.)

Deleatidium lillii Eaton, 1899, p. 289.

(Text-fig. 43)

LECTOTYPE ♂. No. 46. Wellington, Hudson. *Leptophlebia liliei sp. nov.*, in Eaton's writing. B.M. 1938–674.

There are no other examples in the McLachlan collection bearing the number 46, the others being numbered 41 and 51. Phillips, 1930, p. 368 is incorrect in

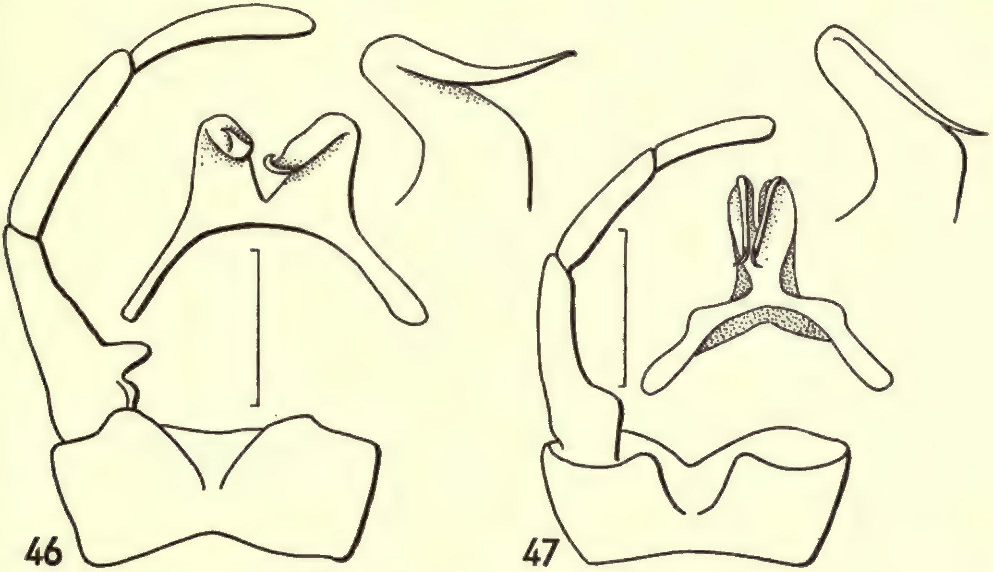


FIGS. 42–45. ♂ Genitalia, ventral (with penis-lobes in side view also) of 42, *Calliarcys humilis* Eaton, type; 43, *Deleatidium lillii* Eaton, type; 44, *Choroterpes exigua* Eaton, type; 45, *Choroterpes lusitanica* Eaton, type. (Scale = 0·2 mm.)

stating that " the winged stages of this insect were first described by Walker under the name *Baëtis scita*, then by Eaton as *Leptophlebia scita* and again as *Atalophlebia scita*." Walker's species is quite distinct.

Deleatidium strigata (Eaton), 1871, p. 80, pl. 4, fig. 19 (as *Leptophlebia*).

HOLOTYPE ♀. McL. type-label (pink). N. Aust. *Leptophlebia strigata Etn.*, in McLachlan's writing. B.M. 1938–674.



FIGS. 46–47. ♂ Genitalia, ventral (with penis-lobes in side view also) of *Habrophlebia* spp. 46, *H. nervulosa* Eaton, paratype ; 47, *H. umbratilis* Eaton, paratype. (Scale = 0·2 mm.)

Habrophlebia lauta Eaton, 1884, p. 120.

The name *Habrophlebia lauta* was proposed by Eaton to replace Pictet's mis-identified *Potamanthus cinctus* (Retzius), and the TYPE should therefore be in the Pictet collection, Geneva. The name *lauta* is sometimes attributed to McLachlan, whose use of it was a *nomen nudum*. He merely quoted Eaton's name, without giving either description or reference to Pictet's name.

Habrophlebia nervulosa Eaton, 1884, p. 117.

(Text-fig. 46)

LECTOTYPE ♂. Eaton, Portugal, 1880. Ponte de Morcelles, 14.vi.80. B.M. 1938–674. Habrophlebia nervulosa Etn., det. A. E. Eaton. The specimens from Corsica, figured by Esben-Petersen (1913, *Ent. Medd.* 10 : 22, figs. 4–5) as *Habrophlebia nervulosa* Eaton appear to be mis-identified, as they differ in the form of the forceps and of the hind wing.

Habrophlebia umbratilis Eaton, 1884, p. 119.

(Text-fig. 47)

Lectotype ♂. Apennino Pistojese, Eaton, 1882. 2.viii.82. B.M. 1938–674. Habrophlebia umbratilis Etn., det. A. E. Eaton.

Hagenulus caligatus Eaton, 1882, p. 207.

Type in Mus. comp. Zool. Cambridge, Mass. There is a female paratype in the British Museum (Nat. Hist.), presented by Dr. Hagen.

Hagenulus monstratus Eaton, 1892*a*, p. 189.

Lectotype ♂ (subimago). McL. type-label (pink). Tenasserim Valley. *Hagenulus monstratus*. B.M. 1938–674. Lectoallotype ♀. Data as above.

Hagenulus scotti Eaton, 1913*a*, p. 433.

(Text-fig. 48)

Holotype ♂. Mahé, '08–'09. Seychelles Islands. Percy Sladen Trust Expedition. 1910–170. Hagenulus scotti Eaton Type.

Leptophlebia auriculata Eaton. See *Adenophlebia*.

Leptophlebia (Blasturus) concinnus (Walker), 1853, p. 553 (as *Palingenia*).

Holotype ♂. Discussed by Spieth, 1940, p. 327. Male genitalia figured by Traver, 1935, p. 536, fig. 138 (as *cupidus*). Now considered a synonym of *Leptophlebia* (*Blasturus*) *cupidus* (Say).

Leptophlebia dentata Eaton. See *Atalophlebia*.

Leptophlebia elongatula McLachlan. See *Ephemerella*.

Leptophlebia furcifera Eaton. See *Deleatidium*.

Leptophlebia (Blasturus) gravastellus Eaton; 1884, p. 102 (as *Blasturus*).

Holotype ♂. Discussed by Spieth, 1941, p. 96, fig. 1.

Leptophlebia gregalis Eaton. See *Paraleptophlebia*.

Leptophlebia (Blasturus) hebes (Walker), 1853, p. 538 (as *Ephemera*).

The Type of this species was considered missing for many years, until Dr. Spieth visited the British Museum (Nat. Hist.) in 1939 and discovered that someone had wrongly attached to the type the label " 45. Baëtis ". Hagen, in 1857, thinking that this specimen was indeed Walker's No. 45, Baëtis (an undescribed specimen), made it the type of his *Baëtis ignava*, and it was so labelled by Eaton. There is no doubt that the specimen is in fact Walker's *Ephemera hebe*, since in addition to the labels listed by Spieth, 1940, p. 326, there is the B.M. register label, 39.9.26.104, which in the register is given as an *Ephemera* from Newfoundland, presented by W. C. St. John, Esq.

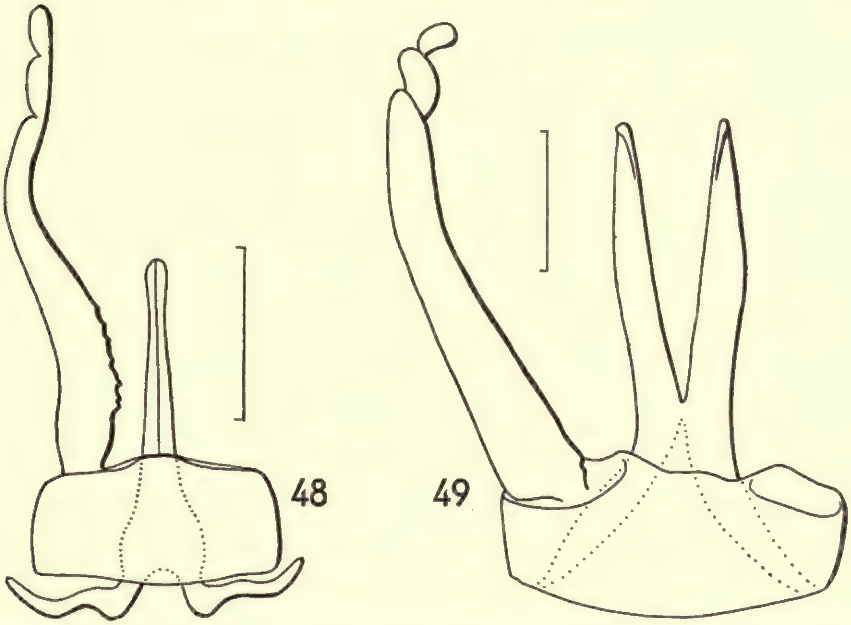
Leptophlebia inconspicua Eaton. See *Atalophlebia.*

Leptophlebia memorialis Eaton. See *Paraleptophlebia.*

Leptophlebia meyeri Eaton, 1884, p. 95.

TYPE probably in the Meyer-Dur collection. Now considered a synonym of *Leptophlebia vespertina* (Linné).

Leptophlebia mollis Eaton. See *Paraleptophlebia.*



FIGS. 48–49. ♂ Genitalia, ventral, of 48, *Hagenulus scotti* Eaton, paratype ; 49, *Thraulus bellus* Eaton, type. (Scale = 0·2 mm.)

Leptophlebia (Blasturus) nebulosus (Walker), 1853, p. 554 (as *Palingenia*).

LECTOTYPE ♂. Designated by Spieth, 1940, p. 327. Male genitalia figured by Traver, 1935, p. 536, fig. 138.

Leptophlebia nodularis Eaton. See *Atalophlebia.*

Leptophlebia (Blasturus) pallipes (Walker), 1853, p. 553 (as *Palingenia*).

LECTOTYPE ♀. R. N. Scotia, Redman. *Palingenia pallipes* (*Type*) *Walker*, in Eaton's writing. This is the first specimen mentioned by Spieth, 1940, p. 329, who did not specify a lectotype. Now considered a synonym of *Leptophlebia* (*Blasturus*) *cupidus* (Say).

Leptophlebia praepedita Eaton. See *Choroterpes.*

Leptophlebia rufivenosa Eaton. See *Paraleptophlebia.*

Leptophlebia strandii Eaton. See *Paraleptophlebia.*

Leptophlebia strigata Eaton. See *Deleatidium.*

Leptophlebia vaciva Eaton. See *Paraleptophlebia.*

Paraleptophlebia debilis (Walker), 1853, p. 569 (as *Baëtis*).

HOLOTYPE ♀. Discussed by Spieth, 1940, p. 333.

Paraleptophlebia gregalis (Eaton), 1884, p. 98 (as *Leptophlebia*).

LECTOTYPE ♂. Designated by Spieth, 1941, p. 94, fig. 6.

Paraleptophlebia memorialis (Eaton), 1884, p. 98 (as *Leptophlebia*).

TYPE in Mus. comp. Zool. Cambridge, Mass. (*L. memorialis* was a new name for *L. pallipes* Hagen).

Paraleptophlebia mollis (Eaton), 1871, p. 88, pl. 4, fig. 28 (as *Leptophlebia*).

Specimen in Mus. comp. Zool. Cambridge, Mass. is labelled " Box I, A. E. Eaton " but without type label.

Paraleptophlebia praepedita (Eaton), 1884, p. 99, pl. 11, fig. 17*c* (as *Leptophlebia*).

LECTOTYPE ♂. Designated by Spieth, 1941, p. 94. Male genitalia figured by Traver, 1935, p. 524, fig. 134.

Paraleptophlebia rufivenosa (Eaton), 1884, p. 99 (as *Leptophlebia*).

LECTOTYPE ♀. Designated by Spieth, 1941, p. 96.

Paraleptophlebia strandii (Eaton), 1901, p. 253, fig. 1 (as *Leptophlebia*).

According to Brekke, 1938, p. 60 (footnote), the Strand collection, from which this species was described, has not been located.

Paraleptophlebia vaciva (Eaton), 1884, p. 97 (as *Leptophlebia*).

LECTOTYPE ♂. Designated by Spieth, 1941, p. 96. Male genitalia figured by Traver, 1935, p. 522, fig. 133.

Thraulodes colombiae (Walker), 1853, p. 537 (as *Ephemera*).

HOLOTYPE ♀. Columbia, 47–71. *Ephemera colombiae* (*Type*) *Walker*, in Eaton's writing.

Thraulodes hilaris (Eaton), 1892*b*, p. 8 (as *Thraulus*).

LECTOTYPE ♂. Designated by Kimmins, 1934, p. 345, fig. 10.

Thraulodes laetus (Eaton), 1884, p. 110, pl. 13, fig. 23*3 (as *Thraulus*).

HOLOTYPE ♂. New Granada, Nolcken. *laetus*. B.M. 1938–674. *Thraulus laetus Etn.*, TYPE, D. E. Kimmins det. 1950. The type now lacks the apex of its abdomen.

Thraulodes lepidus (Eaton), 1884, p. 109 (as *Thraulus*).

HOLOTYPE ♂. Chiriqui. *Thraulus lepidus*, in Eaton's writing. B.M. 1938–674. The genitalia of the type agree with the figure given by Kimmins, 1934, p. 343, fig. 7.

Thraulodes mexicanus (Eaton), 1884, p. 109, pl. 13, fig. 23*4 (as *Thraulus*).

HOLOTYPE ♂ in Brussels Museum.

Thraulodes nervosa (Eaton), 1892*b*, p. 6, pl. 1, figs. 6, 6*a* (as *Choroterpes*).

HOLOTYPE ♂. Discussed by Kimmins, 1934, p. 344, fig. 8.

Thraulus bellus Eaton, 1881, p. 195.

(Text-fig. 49)

LECTOTYPE ♂. Cintra, 1.vi.80. Eaton, Portugal, 1880. B.M. 1938–674. Thraulus bellus Etn., det. A. E. Eaton. One hind wing mounted between cover-glasses, one fore wing between celluloid.

Thraulus exiguus Eaton. See *Choroterpes*.

Thraulus hilaris Eaton. See *Thraulodes*.

Thraulus laetus Eaton. See *Thraulodes*.

Thraulus lepidus Eaton. See *Thraulodes*.

Thraulus mexicanus Eaton. See *Thraulodes*.

Thraulus primanus Eaton. See *Traverella*.

Thraulus versicolor Eaton. See *Traverella*.

Traverella primanus (Eaton), 1892*b*, p. 7, pl. 1, figs. 7, 7*a* (as *Thraulus*).

LECTOTYPE ♂. Designated by Kimmins, 1934, p. 342 (apex of abdomen missing).

Traverella versicolor (Eaton), 1892*b*, p. 7, (as *Thraulus*).

LECTOTYPE ♀. Designated by Kimmins, 1934, p. 342, fig. 6.

Family EPHEMERELLIDAE

Ephemerella (Chitonophora) aronii (Eaton), 1908, p. 149 (as *Ephemerella*).

The TYPE of this species should be the male collected in Finland by Dr. J. E. Aro (after whom the species is named). This specimen may be in the Helsinki Museum. The allotype ♀ and a paratype ♀ are probably in the Tromsø Museum. The female collected by Eaton and given to McLachlan has been found, labelled by Eaton as *Ephemerella* sp., in the McLachlan accessions. It is a subimago and has been labelled paratype. The species is now considered a synonym of *Ephemerella* (*Chitonophora*) *aurivillii* Bengtsson.

Ephemerella (Drunella) fuscata (Walker), 1853, p. 570 (as *Baëtis*).

LECTOTYPE ♂. Designated by McDunnough, 1931, p. 214, fig. 2. Walker's species is a homonym of *Baëtis fuscata* Stephens and was renamed *Ephemerella walkeri* by Eaton.

Ephemerella (Drunella) grandis (Eaton), 1884, p. 128, pl. 14, fig. 24*b* (as *Ephemerella*).

LECTOTYPE ♀. Designated by Spieth, 1941, p. 96.

Ephemerella (Drunella) walkeri (Eaton), 1884, p. 129 (as *Ephemerella*).

TYPE as for *E.* (*D.*) *fuscata* (Walker).

Ephemerella elongatula (McLachlan), 1875, p. 169 (as *Leptophlebia*).

LECTOTYPE ♀. Japan, Pryer. *Leptophlebia elongatula McL.* B.M. 1938–674. The female subimago, stated by Eaton, 1884, p. 131 to be a *Heptagenia*, has not been traced.

Ephemerella hispanica Eaton, 1887, p. 306.

TYPE ♂ probably in Pictet collection, Geneva, allotype ♀ in Leiden Museum.

Ephemerella inermis Eaton, 1884, p. 127.

TYPES in Mus. comp. Zool., Cambridge, Mass.

Ephemerella invaria (Walker), 1853, p. 568 (as *Baëtis*).

LECTOTYPE ♂. Example with abdomen mounted on microscope slide, designated by McDunnough, 1925, p. 213, fig. 6.

Ephemerella notata Eaton, 1887, p. 305, pl. 65, fig. 9.

LECTOTYPE ♂. Salkeld, 18.vi.86. Ephemerella notata Etn., det. A. E. Eaton. B.M. 1938–674. LECTOALLOTYPE ♀. As above, date 20.vi.86. Male genitalia figured by Kimmins, 1942*a*, p. 28, fig. 10N.

Ephemerella (Timpanoga) hecuba (Eaton), 1884, p. 133, pl. 40, figs. 1–17 (as *Ephemerella*, figs. as *Ephemera hecuba* Hagen).

TYPE NYMPH not traced in Mus. comp. Zool., Cambridge, Mass. (W. L. Brown, Jr., i. l. 23.x.1958). Spieth, 1941, p. 87, when dealing with the Eaton types in the British Museum (Nat. Hist.) remarks "The alcoholic material of the Eaton collection is not yet available for study, and I therefore did not see the nymphal type of *Ephemerella hecuba* Eaton." Eaton however states that this material is in the Mus. comp. Zool., Cambridge, Mass.

Teloganodes major Eaton, 1884, p. 136.

LECTOTYPE ♀ (subimago). Ceylon, 63–9. *Teloganodes major Etn.*, in Eaton's writing.

Family TRICORYTHIDAE

Leptohyphes brevissimus Eaton, 1892*b*, p. 12, pl. 1, fig. 9.

LECTOTYPE ♀. Designated by Kimmins, 1934, p. 347, fig. 12.

Leptohyphes eximius Eaton, 1882, p. 208.

TYPE in Mus. comp. Zool., Cambridge, Mass.

Tricorythodes explicatus (Eaton), 1892*b*, p. 11, pl. 1, figs. 8, 8*a* (as *Tricorythus*).

LECTOTYPE ♂. Designated by Kimmins, 1934, p. 346. Male genitalia figured by McDunnough, 1931*a*, p. 266, fig. 13.

Family CAENIDAE

Caenis cibaria Eaton, 1879, p. 268.

LECTOTYPE ♂. Lake Nyassa, 79–26. *Caenis cibaria ♂ Type,* in Eaton's writing. *Caenis cibaria Etn., ♂ Type,* D. E. Kimmins det. 1947. LECTOALLOTYPE ♀. Data as above. *Caenis cibaria ♀ Type. Caenis cibaria Etn., ♀ allotype,* D. E. Kimmins det. 1947. Male genitalia figured by Kimmins, 1949, p. 832, fig. 6.

Caenis diminuta Walker, 1853, p. 584.

HOLOTYPE ♂. Discussed by Spieth, 1940, p. 337. Male genitalia figured by McDunnough, 1931*a*, p. 258, fig. 2.

Caenis kungu Eaton, 1879, p. 268.

HOLOTYPE ♂. Lake Nyassa, 79–26. *Caenis kungu ♂ Type.* ALLOTYPE ♀. Same data. *Caenis kungu ♀ Type.* Male genitalia figured by Kimmins, 1949, p. 832, fig. 7.

Caenis lactella Eaton, 1884, p. 144.

New name for *Caenis lactea* Pictet. TYPE in Pictet collection.

Caenis perpusilla Walker, 1853, p. 585.

HOLOTYPE ♂. (Ceylon. Locality label now missing.) *Caenis perpusilla (Type) Walker,* in Eaton's writing. The type is in fairly good condition.

Caenis rivulorum Eaton, 1884, p. 143 (as var. *rivulorum* of *C. halterata*).

I have been able to trace only one example in the McLachlan collection belonging to the type-series. LECTOTYPE ♂. Thorncombe, Dorset, 1882. *rivulorum Etn.* B.M. 1938–674. *Caenis halterata, var. rivulorum Etn. Type,* D. E. Kimmins det. 12.iii.42.

Caenis robusta Eaton, 1884, p. 145.

LECTOTYPE ♂. Netherlands, Eaton, 1879. Gouda, 29.vii.1879. B.M. 1938–674. Caenis robusta Etn., det. A. E. Eaton. LECTOALLOTYPE ♀. Data as above, date 31.vii.1879. Male genitalia figured by Kimmins, 1954, p. 117, fig. 1.

Caenis sinense Walker. See *Cloëon*.

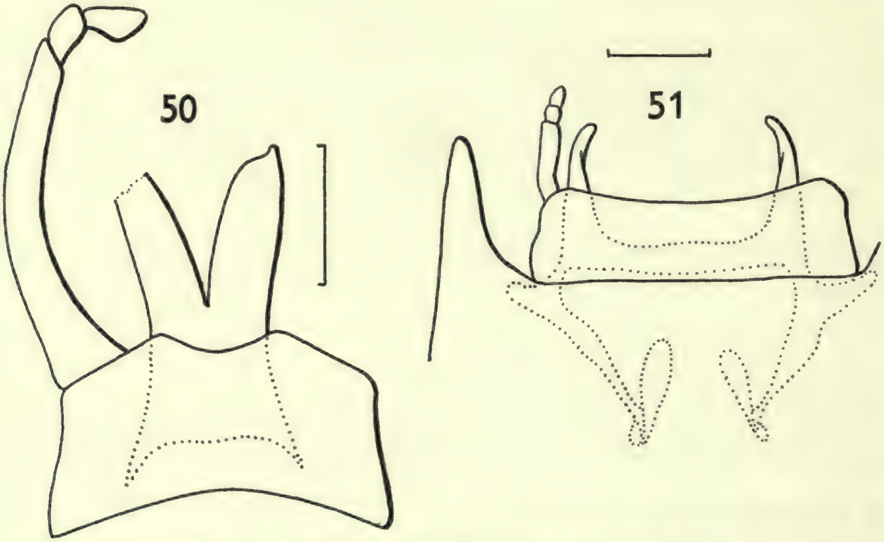
Family POTAMANTHIDAE

Potamanthellus amabilis (Eaton), 1892*a*, p. 188 (as *Rhoenanthus*).

(Text-fig. 51)

LECTOTYPE ♂. McL. type-label (pink). Tenasserim Valley. *Rhoenanthus amabilis*, in Eaton's writing. B.M. 1938–674.

Potamanthus exspectans Walker. See *Ephemera*.



FIGS. 50–51. ♂ Genitalia, ventral, of 50, *Potamanthodes formosus* (Eaton), type; 51, *Potamanthellus amabilis* (Eaton), type. (Scale = 0·2 mm.)

Potamanthodes formosus (Eaton), 1892*a*, p. 186 (as *Potamanthus*).

(Text-fig. 50)

LECTOTYPE ♂. McL. type-label (pink). Tenasserim Valley. *Potamanthus formosus* ♂, in Eaton's writing. B.M. 1938–674. LECTOALLOTYPE ♀. Data as above.

Rhoenanthus amabilis Eaton. See *Potamanthellus*.

Rhoenanthus speciosus Eaton, 1881, p. 192.

Dr. M. A. Lieftinck informs me (i. l. x. 1958) that the collections of the Mus. Soc. Zool. " Natura artis magistra " are not at Leiden, as recorded by Eaton, but at the Amsterdam Museum. He kindly made enquiries there and learns that the TYPES of *Rhoenanthus speciosus* cannot be found.

Family EUTHYPLOCIDAE

Campylocia anceps (Eaton), 1883, p. 38, pl. 4, fig. 7*c* (as *Euthyplocia*).

(Text-fig. 52)

HOLOTYPE ♂. Rio Mauhes, Trail. *Euthyplocia anceps Etn.* B.M. 1938–674. It seems doubtful whether the examples figured by Ulmer, 1942, pl. 1, figs. 3*a*, *b* are conspecific with the type.

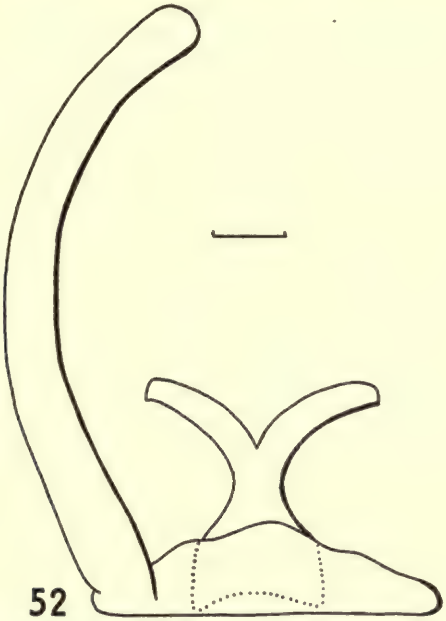


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FIG. 52. ♂ Genitalia, ventral, of *Campylocia anceps* (Eaton), type. (Scale = 0·2 mm.)

Family EPHEMERIDAE

Eatonica illustris (Eaton), 1913, p. 276 (as *Hexagenia*).

HOLOTYPE ♂. Uganda Protectorate, Mpanga Forest, Toro, 4,800 ft., 12–23. xi. 1911. S. A. Neave. *Hexagenia illustris sp. nov.*, in Eaton's writing. Now considered a synonym of *Eatonica schoutedeni* Navás.

Ephemera australis Walker. See *Atalophlebia*.

Ephemera colombiae Walker. See *Thraulodes* (Leptophlebiidae).

Ephemera consors Eaton, 1892*c*, p. 412.

(Text-fig. 57)

TYPES ♂ and ♀ originally in Indian Museum, Calcutta : now possibly in Zoological Survey of India collection, Calcutta. One male and two female paratypes in British Museum (Nat. Hist.).

Ephemera decora Walker, 1853, p. 537.

HOLOTYPE ♂. Discussed by Spieth, 1940, p. 325. Now considered a synonym of *E. simulans* Walker.

Ephemera dislocans Walker. See *Adenophlebia.*

Ephemera exspectans (Walker), 1860, p. 198 (as *Potamanthus*).

HOLOTYPE ♀. (subimago). Hindostan. Saunders, 68–3. *exspectans Walk.*, in Walker's writing. *Potamanthus expectans* (*Type*) *Walker*, in Eaton's writing. I have reverted to the spelling of the specific name (*exspectans*) as given in the original publication, on Walker's label and in Eaton, 1871. Eaton gives no explanation (1883, p. 72) of the reason for changing the spelling to *expectans.*

Ephemera hebes Walker. See *Leptophlebia.*

Ephemera hudsoni McLachlan. See *Ichthybotus.*

Ephemera immaculata Eaton, 1871, p. 74.

HOLOTYPE ♂ (very battered), in Hope Dept., University Museum, Oxford.

Ephemera japonica McLachlan, 1875, p. 169.

LECTOTYPE ♂. McL. type-label (pink). Japan, Pryer. *Ephemera japonica McL.*, in McLachlan's writing. B.M. 1938–674. LECTOALLOTYPE ♀. Data as above, McL. type-label missing.

Ephemera lineata Eaton, 1870, p. 1.

LECTOTYPE ♂ (in glycerine). Data on cork, *Ephemera lineata ♂ im.* The B.M. register No. 68–124 gives the following additional information "*Ephemera lineata Etn., Mss., Reading*". Male genitalia figured by Kimmins, 1942*a*, p. 20, fig. 4L.

Ephemera natata (Walker), 1853, p. 551 (as *Palingenia*).

LECTOTYPE ♀ (subimago). Hudson's Bay, 44–17. 251 or 650. *Ephemera natata. Palingenia natata* (*Type*) *Walker*, in Eaton's writing.

Ephemera orientalis McLachlan, 1875, p. 168.

HOLOTYPE ♂ in Leiden Museum.

Ephemera pictiventris McLachlan, 1894, p. 428.

LECTOTYPE ♀. McL. type-label (pink). Ta-chien-lu. *Ephemera pictiventris McL.*, in McLachlan's writing. B.M. 1938–674.

Ephemera pulcherrima Eaton, 1892*a*, p. 185.

HOLOTYPE ♀ (subimago). McL. type-label (pink). Tenasserim Valley. *Ephemera pulcherrima,* in Eaton's writing. B.M. 1938–674.

Ephemera remensa Eaton, 1892*c*, p. 410.

(Text-fig. 54)

Holotype ♂ originally in the Indian Museum, Calcutta ; now possibly in Zoological Survey of India collection, Calcutta. Allotype ♀. McL. type-label (pink). Musuri, 7,000 ft., June, Lang. *Ephemera remensa,* in Eaton's writing. B.M. 1938–674. There is also a male paratype in the British Museum (Nat. Hist.), from which Text-fig. 54 was made.

Ephemera serica Eaton, 1871, p. 75, pl. 4, figs. 12, 12*a*.

(Text-fig. 53)

Lectotype ♂. Hongkong, 61–49. *Ephemera serica* (*Type*) *Eaton,* in Eaton's writing. Lectoallotype ♀. N. China. 54–8. *Ephemera serica* (*Type*) *Eaton,* in Eaton's writing. The head and thorax of the lectotype has been destroyed by pests.

Ephemera simulans Walker, 1853, p. 536.

Holotype ♂ (subimago). Discussed by Spieth, 1940, p. 326.

Ephemera strigata Eaton, 1892, p. 302.

(Text-fig. 55)

Lectotype ♂. McL. type-label (pink). Japan, Pryer. *Ephemera strigata Etn.,* in McLachlan's writing. B.M. 1938–674. Lectoallotype ♀. Data as above, with addition, Gifu, Apr.–May, 1886.

Ephemera supposita Eaton, 1883, p. 72, pl. 8, fig. 12*c*.

Types in Mus. comp. Zool. Cambridge, Mass. (New name for *Potamanthus fasciatus* Hagen *partim*).

Ephemera varia Eaton, 1883, p. 69, pl. 63, fig. 12*h*.

Types in Mus. comp. Zool., Cambridge, Mass. (New name for *Ephemera decora* Hagen).

Hexagenia albivitta (Walker), 1853, p. 566 (as *Baëtis*).

Lectotype ♂. Braz. 52–44. *Baëtis albivitta* (*Type*) *Walker,* in Eaton's writing.

Hexagenia angulata (Walker), 1853, p. 564 (as *Baëtis*).

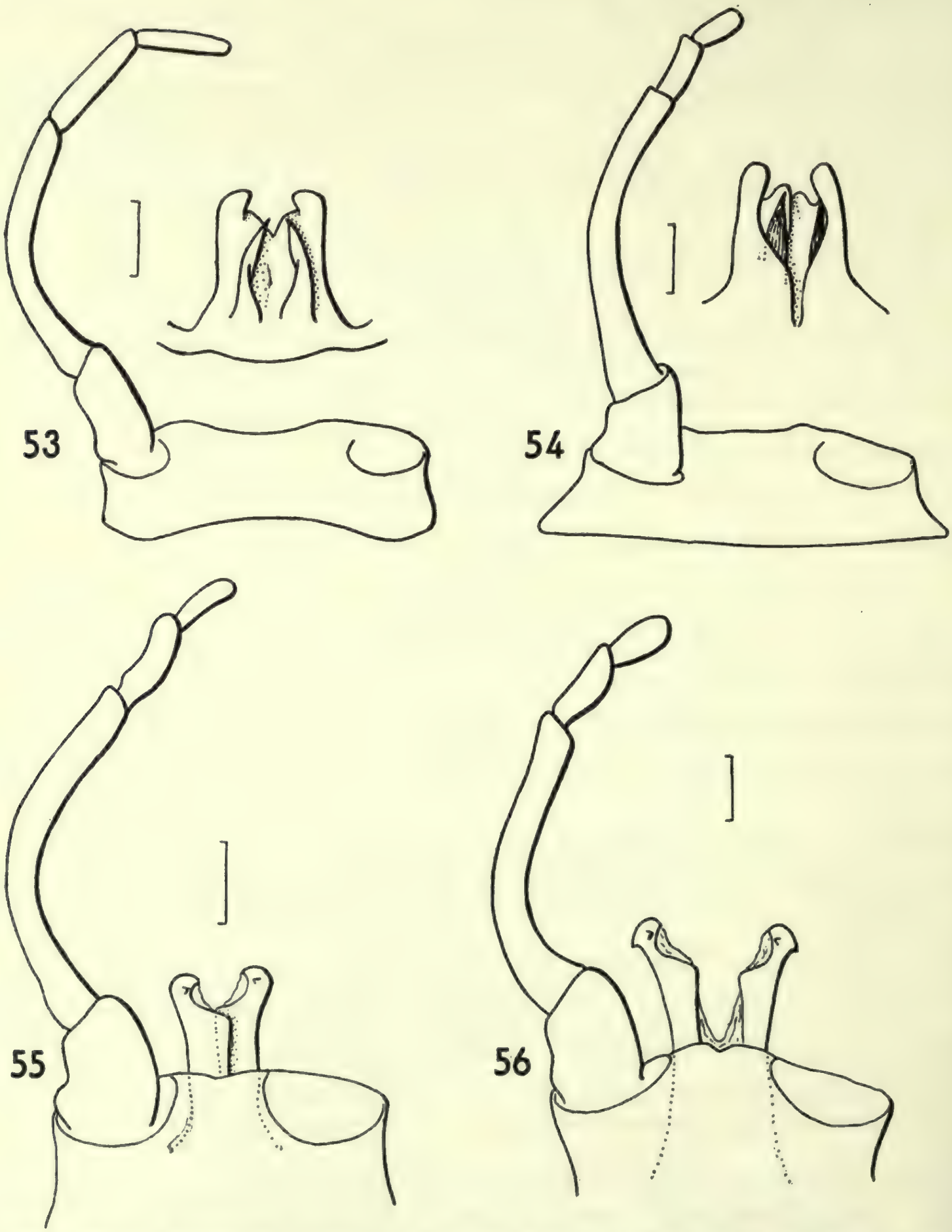
Holotype ♂. Discussed by Spieth, 1940, p. 332. Placed by Spieth as a synonym of *Hexagenia limbata viridescens* (Walker).

Hexagenia continua (Walker), 1860, p. 199 (as *Palingenia*).

Holotype ♂ (subimago). Amaz. Saunders, 68–3. *continua Walk.,* in Walker's writing. *Palingenia continua* (*Type*) *Walker,* in Eaton's writing. Now considered a synonym of *Hexagenia albivitta* (Walker).

Hexagenia illustris Eaton. See *Eatonica.*

Hexagenia mexicana Eaton. See *Pseudeatonica.*



FIGS. 53–56. ♂ Genitalia, ventral, of *Ephemera* spp. 53, *E. serica* Eaton, type; 54, *E. remensa* Eaton, paratype; 55, *E. japonica* McLachlan, paratype; 56, *E. strigata* Eaton, paratype. (Scale = 0·2 mm.)

Hexagenia munda Eaton, 1883, p. 53.

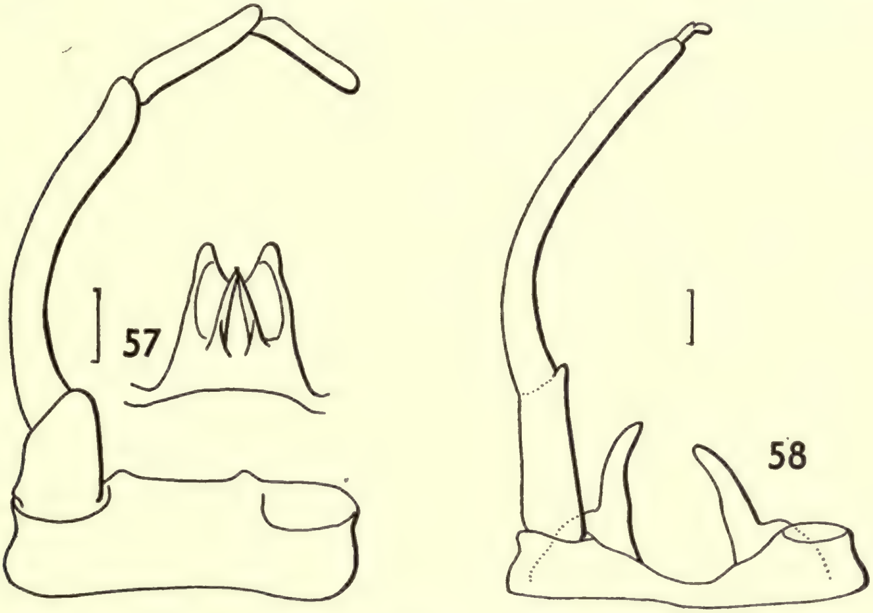
TYPES in Mus. comp. Zool., Cambridge, Mass.

Hexagenia occulta (Walker), 1853, p. 551 (as *Palingenia*).

LECTOTYPE ♂ (subimago). Designated by Spieth, 1940, p. 328.

Hexagenia variabilis Eaton, 1883, p. 55.

New name for *Palingenia limbata* Pictet. TYPE possibly in the Pictet collection, Geneva.



FIGS. 57–58. ♂ Genitalia, ventral, of 57, *Ephemera consors* Eaton, paratype ; 58, *Hexagenia albivitta* (Walker), type. (Scale = 0·2 mm.)

Hexagenia venusta Eaton, 1883, p. 54.

LECTOTYPE ♂. Designated by Spieth, 1941, p. 88.

Hexagenia viridescens (Walker), 1853, p. 551 (as *Palingenia*).

HOLOTYPE ♀ (subimago). Re-described by Spieth, 1940, p. 329.

Ichthybotus hudsoni (McLachlan), 1894*a*, p. 270 (as *Ephemera*).

(Text-fig. 59)

LECTOTYPE ♂. McL. type-label (pink). New Zealand. *Ephemera hudsoni McL.*, in McLachlan's writing. B.M. 1938–674. LECTOALLOTYPE ♀ (subimago). McL. type-label (pink). New Zealand, Hudson. 32. *Ephemera hudsoni McL.*, in McLachlan's writing. B.M. 1938–674.

Pseudeatonica mexicana (Eaton), 1883, p. 50 (as *Hexagenia*).

HOLOTYPE ♂. In Mus. comp. Zool., Cambridge, Mass.

Family POLYMITARCIDAE

Asthenopus curtus (Eaton), 1868, p. 84 (as *Campsurus*).

(Text-fig. 60)

HOLOTYPE ♂. Para, 45–56. *Palingenia albifilum Walker, var.*, in Kimmins' writing. *Palingenia curta* (*Type*) *Hagen Ms.*, and *Asthenopus curtus* (*Type*) *Eaton*, in Eaton's writing. Ulmer's figure, 1942, p. 2, fig. 13, differs considerably in the shape of the penis-lobes and may possibly represent another species.

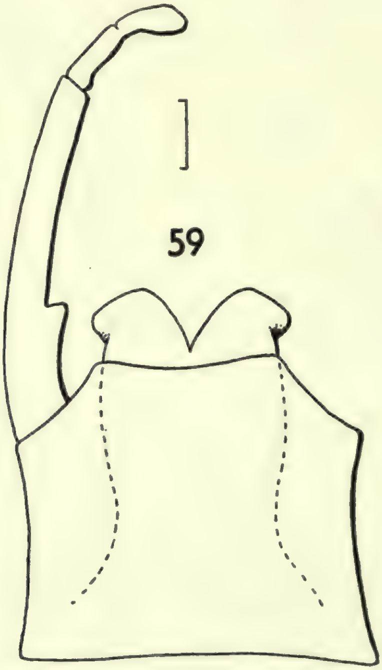


FIG. 59. ♂ Genitalia, ventral, of *Ichthybotus hudsoni* McLachlan, example from Hudson collection. (Scale = 0·2 mm.)

Campsurus albifilum (Walker), 1853, p. 554 (as *Palingenia*).

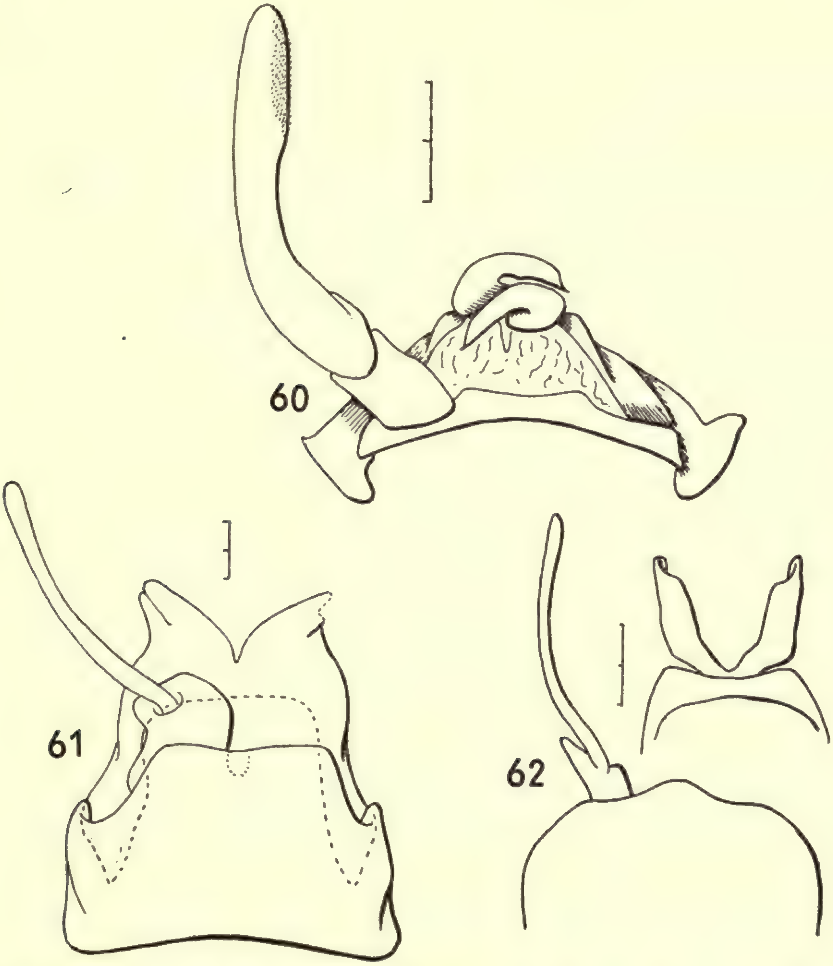
(Text-fig. 61)

HOLOTYPE ♂. Para, 45–56. *Palingenia albifilum* (*Type*) *Walker*, in Eaton's writing.

Campsurus curtus Eaton. See *Asthenopus*.

Campsurus cuspidatus Eaton, 1871, p. 58, fig. 12.

Two syntypes in Brussels Museum, of which I designate the more complete as Lectotype.



Figs. 60–62. ♂ Genitalia, ventral, of 60, *Asthenopus curtus* (Eaton), type ; 61, *Campsurus albifilum* (Walker), type ; 62, *Campsurus latipennis* (Walker), type (dissected from subimago). (Scale = 0·2 mm.)

Campsurus latipennis (Walker), 1853, p. 554 (as *Palingenia*).

(Text-fig. 62)

Lectotype ♂. Para, 49–1. *Palingenia latipennis* (*Type*) *Walker,* in Eaton's writing. Lectoallotype ♀. Details as above. The lectotype is a partially moulted subimago, and the genitalia have been cleared in caustic potash solution and withdrawn from the subimaginal skin for figuring. They are consequently very transparent.

Campsurus quadridentatus Eaton, 1871, p. 58, pl. 3, fig. 13.

HOLOTYPE ♂ in Dale collection, University Museum, Oxford.

Family PALINGENIIDAE

Anagenesia ampla Eaton, 1883, p. 26, pl. 1, fig. 1*c* (as *Palingenia* (*Anagenesia*)).

(Text-fig. 63)

LECTOTYPE ♂. SAR. (Wallace). Borneo, 56–14. *Anagenesia ampla Etn., Type,* D. E. Kimmins det. 1950. The 2 ♂, 1 ♀ in the Selys collection, mentioned by Ulmer (1924*a*, p. 30) as labelled SAR., and later (1939, p. 458) indicated by him as " Typen " are no doubt part of the type-series, although Eaton did not specify how many examples he had studied, nor to which collection they belonged. I do not consider that Ulmer's citation of " Typen " can be interpreted as designation of a lectotype.

Anagenesia javanica Eaton, 1883, p. 27, pls. 1, 2, figs. 1*d* (as *Palingenia* (*Anagenesia*)).

TYPES in Leiden Museum.

Anagenesia lata (Walker), 1853, p. 550 (as *Palingenia*).

(Text-fig. 64)

LECTOTYPE ♂. Silhet, 45–33. 10. Palingenia lata.

Anagenesia minor (Eaton), 1892*c*, p. 408 (as *Palingenia*).

TYPES originally in Indian Museum, Calcutta; now possibly in collection of Zoological Survey of India, Calcutta. One male paratype in British Museum (Nat. Hist.).

Anagenesia robusta (Eaton), 1892*c*, p. 407 (as *Palingenia*).

TYPE ♂ originally in Indian Museum, Calcutta; now possibly in collection of Zoological Survey of India, Calcutta. One male paratype in British Museum (Nat. Hist.).

Anagenesia tenera Eaton, 1883, p. 27, pl. 2, fig. 1*e* (as *Palingenia* (*Anagenesia*)).

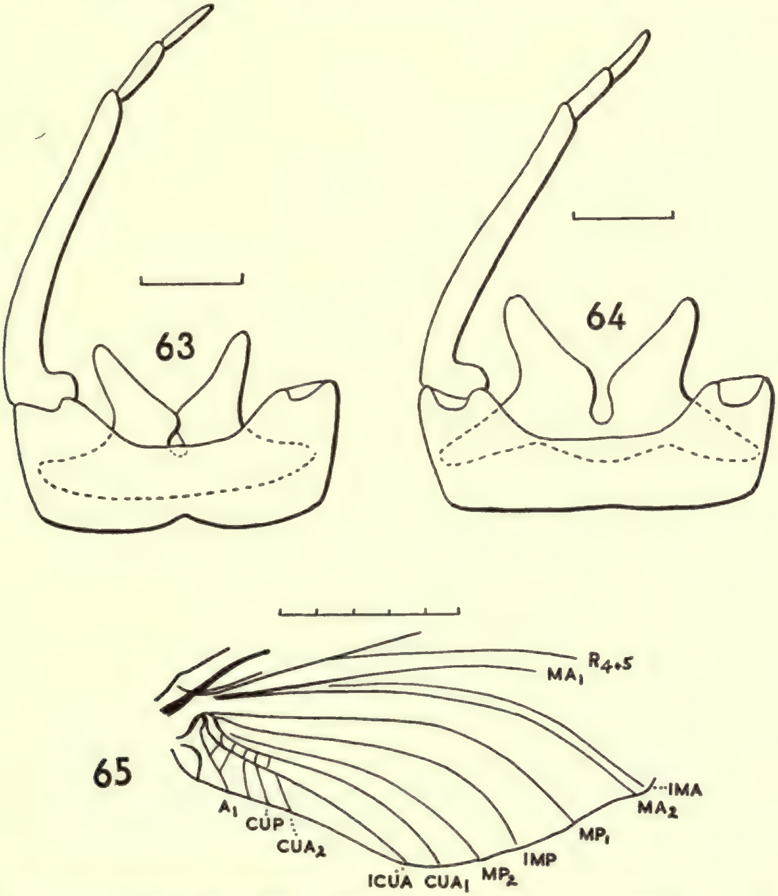
HOLOTYPE ♂ in Leiden Museum.

Chankagenesia sibirica (McLachlan), 1872, p. 50 (as *Palingenia*).

(Text-fig. 65)

HOLOTYPE ♂. McL. type-label (pink). Irkutsk, 20.v.66. *Palingenia sibirica McL.,* in McLachlan's writing. B.M. 1938–674.

In the original description, McLachlan has somewhat magnified the extent of the damage to the type. Both hind wings and part of the right fore wing are now missing, as are most of the legs, the cerci and all but the basal part of the forceps. The remains of the wings have now been removed, softened and mounted as microscope preparations On comparing them with the figure of this species given by Demoulin (1952, fig. 2), two differences are noted. Firstly MA forks very definitely basal of the origin of Rs, much more so than in Demoulin's figure. Secondly, the vein CUP appears to fuse with ICUA for a short distance, the basal part of the latter vein simulating a cross-vein. CUP then diverges from ICUA and runs to the wing margin. My figure is a composite one, based upon the left fore wing (reversed), with the details of the base filled in from the right fore wing, this part being damaged in the left wing. I am not figuring what is left of the male genitalia, as the penis-lobes are somewhat uniform and lacking in specific characters.



FIGS. 63–65. 63, *Anagenesia ampla* Eaton, ♂ type, genitalia ventral; 64, *A. lata* (Walker), ♂ type, genitalia, ventral. (Scale = 1 mm.) 65, *Chankagenesia sibirica* (McLachlan), ♂ type, base of fore wing. (Scale = 5 mm.)

Palingenia albifilum Walker. See *Campsurus* (Polymitarcidae).

Palingenia ampla Eaton. See *Anagenesia*.

Palingenia annulifer Walker. See *Ecdyonurus*.

Palingenia bicolor Walker. See *Isonychia.*

Palingenia concinna Walker. See *Leptophlebia.*

Palingenia continua Walker. See *Hexagenia.*

Palingenia humeralis Walker. See *Coloburiscus* (Isonychiidae).

Palingenia ignota Walker. See *Isonychia.*

Palingenia javanica Eaton. See *Anagenesia.*

Palingenia lata Walker. See *Anagenesia.*

Palingenia latipennis Walker. See *Campsurus.*

Palingenia minor Eaton. See *Anagenesia.*

Palingenia natata Walker. See *Ephemera.*

Palingenia nebulosa Walker. See *Leptophlebia.*

Palingenia occulta Walker. See *Hexagenia.*

Palingenia papuana Eaton. See *Plethogenesia.*

Palingenia remota Walker. See *Coloburiscus.*

Palingenia robusta Eaton. See *Anagenesia.*

Palingenia sibirica McLachlan. See *Chankagenesia.*

Palingenia tenera Eaton. See *Anagenesia.*

Palingenia viridescens Walker. See *Hexagenia.*

Palingenia vitrea Walker. See *Iron.*

Plethogenesia papuana (Eaton), 1879*a*, p. 398, figs. *a–f* (as *Palingenia*).

TYPES in fluid in Mus. civ. Stor. nat. Genova. The examples in fluid in the McLachlan collection are apparently lost, as no such material came to the British Museum (Nat. Hist.) with the pinned collection in 1938.

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NATURAL HISTORY

THE *JAMIDES EUCHYLAS* COMPLEX (LEPIDOPTERA : LYCAENIDAE)

AND

TWO NEW SPECIES OF THE GENUS JAMIDES (LEPIDOPTERA : LYCAENIDAE)

G. E. TITE

BRITISH MUSEUM
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BY

G. E. TITE

British Museum (Natural History)

3 A[illegible] 60

Pp. 319–336 ; *Plate* 21 ; 36 *Text-figures*

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THE *JAMIDES EUCHYLAS* COMPLEX (LEPIDOPTERA : LYCAENIDAE)

By G. E. TITE

THIS group of the genus *Jamides* Huebner is characterized by its upper surface pattern, which closely resembles that of the genus *Thysonotis* Huebner. Fruhstorfer, Grose-Smith, and others, have provided names for most of the forms contained in the group, but much confusion exists as to their true relationship, as many of them are confusingly similar. Another source of uncertainty is that Fruhstorfer's pl. I and II in *Arch. Naturgesch.* (**81,** A6) are incorrectly numbered ; these double-page plates should be renumbered from left to right horizontally across both pages, when the figures will be found to be consistent with the text.

The male claspers are—except in the case of *J. aleuas*—of the same general conformation. The main dorsal portion (the valve) is an elongated oval, inwardly concave, and furnished with minute teeth along the distal edge ; this is accompanied ventrally by a slighter cylindrical process (the harpe) which is often ornamented with a small projecting point or hook usually pointing towards the dorsum. *J. aleuas* despite its external likeness to *J. euchylas* and its congeners is out of place in this group ; in contrast to the forms already mentioned, its clasper has the main portion situated ventrally and a thin spine-like process dorsally, the whole being very like that of *J. philatus.* A general external similarity on both surfaces in the races here grouped under *euchylas* Hubner and *aruensis* Pagenstecher would suggest subspecific relationship, but examination of the male structure reveals differences which, though certainly geographical, would appear incompatible with so close a kinship. In view of these differences, although there is a strong probability that these forms originated from a common ancestor, it is deemed better to treat *euchylas* and *mimetica* as one species and to group all the other forms as subspecies of *aruensis*.

KEY FOR THE SEPARATION OF THE SPECIES

1. A blue or white crescent enclosing the tornal spot on the hind wing beneath . . *aleuas*
– Without the crescent, but with a pair of parallel metallic blue dashes in place of it . 2
2. With additional pairs of blue dashes in cellule 3, and sometimes also in cellule 4 *coritus*
– With blue dashes in cellule 2 only 3
3. All submarginal lunules metallic blue . . . . *nemophila*
– The submarginal lunules whitish (♂ genitalic differences) 4
4. Valves short . . . . *euchylas*
– Valves long and curved . . . . *aruensis*

Jamides euchylas (Huebner)

(1) ***J. euchylas euchylas*** Huebner

(Text-figs. 1 and 17)

Pepliphorus euchylas Huebner, 1819, *Verz. Bek. Schmett.*, p. 71.
Papilio hylas Cramer, *Pap. Exot.* **4** : 142, pl. 363, f. E, F. (*Nom. preocc.*)
Jamides gamblea Swinhoe, 1916, *Ann. Mag. Nat. Hist.* **8** (18) : 209 (male not female).
Pepliphorus hylas ab. *plumbeus* Rothschild, 1915, *Novitates Zoologicae*, **22** : 138.

Huebner used the name *euchylas* for *hylas* Cramer and referred to Cramer's figure ; no mention of a habitat is made by either author, but fortunately the figure is sufficiently accurate to leave no doubt that it represents the Ceram-Amboina race. The types of *gamblea* Swinhoe are in the British Museum (Natural History) ; the male holotype is *euchylas*, but the female allotype is definitely *coritus* Guerin. The type of ab. *plumbeus* Rothschild is a leaden lavender coloured male from Ceram ; this colour is the result of damp, or chemical action, which has caused the scales to shrivel and curl, and is not a natural condition—so the name is unnecessary. Male *euchylas* show a diffusely edged and diminutive white band on the fore wing above, further obscured by a scattering of blue scales.

The valve is short and broad, rounded at its extremity, and at two-thirds of its length the long and somewhat club-like harpe arises and extends far beyond the valve end. The aedeagus is short, angled ventrally towards the base, and at the other extremity is a small curved ventral spine which is composed of such thin and diaphanous material that some care in focusing is needed to bring it into view.

DISTRIBUTION. Ceram, Amboina, Amahai, Saparua, and Gisser.

(2) ***J. euchylas mimetica*** (Toxopeus MS.) ssp. n.

(Pl. 21, figs. 1–4. Text-fig. 2)

A male and female in the series from Buru in B.M. (N.H.) each bear a label "*Peplodyta euchylas mimetica* Tox. Paratype"; a search of the literature has revealed no mention of this name, and it must be presumed that Toxopeus never carried out his intention of publishing it. In contrast to the preceding race, the Buru males possess a very wide white band (wider in fact than that of any other member of the group) which reaches a width of at least 7 mm. at the inner margin of the fore wing. On the female upperside the blue area of the fore wing is extended almost to the costa, so that that margin is only thinly bordered with black. The black distal margins are also narrower than those of *euchylas*. The male genitalia are similar to those of *euchylas*.

♂ Holotype : North Coast of Buru, xi.97, *W. Doherty*, B.M. Type No. Rh. 16443.

♀ Allotype : Kayeli, Buru, iii.97, *W. Doherty*, B.M. Type No. Rh. 16444.

Other examples : As holotype, 2 ♂, 1 ♀ ; Kayeli, iii–x.97, *W. Doherty*, 5 ♂, 2 ♀ : Wakollo, Centr. Buru, v.92, *Martin Exp.*, 1 ♀ ; Buru, Hewitson Coll., 1 ♀.

Jamides aruensis (Pagenstecher)

(1) ***J. aruensis ariel*** Fruhstorfer

(Text-figs. 4 and 19)

Lampides euchylas ariel Fruhstorfer, 1915, *Zool. Meded.* **1** : 141.
Lycaena euchylas Staudinger, 1888, *Exot. Schmett.*, t. 94.
Lampides euchylas ariel Seitz, 1924, *Macrolep.* **9**, pl. 151*i*.

The male is deeper blue above than the other races, with rather narrow white bands, and heavy dark margins on all wings. The female upperside is well represented in Seitz's figure—though that is said by the author to depict a male ; the narrow margins, increased blue areas, and clearly visible submarginal spots on the hind wing, render it unlike any other. Beneath, the tornal black spot on the hind wing is crowned with a rusty ochreous crescent. The valves—in comparison with those of *euchylas*—are longer, and are furnished with larger teeth on their distal edges. In *ariel* the harpe arises much nearer the base at a point less than one-third of the valve length. It is shorter and slighter than that of *euchylas*, not extending as far as the extremity of the valve ; its apex terminates in a sharp point directed dorsally. The aedeagus also is longer and the small ventral hook is represented by a much more robust and finger-like process.

DISTRIBUTION. Key Islands.

(2) ***J. aruensis gloriel*** Hulstaert

Lampides euchylas gloriel, Hulstaert, 1924, *Ann. Soc. ent. Belg.* **64** : 80, Har, Grande Key.

Hulstaert's description is too brief for the formation of any precise opinion, but it is probable that *gloriel* will fall as a synonym of *ariel*. The male is said to differ only by its greater size, and the only female is described as " Grande, sa bordure noire tres mince, de 1 cm. seulement ". There would seem to be some mistake here, as a width of 1 cm. would be very wide indeed, and it is hardly conceivable that 1 cm. could have been intended.

(3) ***J. aruensis aruensis*** Pagenstecher

(Text-figs. 9–20)

Cupido euchylas v. *aruensis* Pagenstecher, 1884, *Jb. nassau. Ver. Naturk.* **37** : 190, Aru.

Easily distinguished by the ochreous submarginal lunules in cellules 1, 2, and 3, on the underside of the hind wing. The male genitalia differ from those of *ariel* by their greater size, unpointed harpes, and the longer and slightly curved ventral hook of the aedeagus.

DISTRIBUTION : Aru Islands.

(4) ***J. aruensis umbriel*** Fruhstorfer

Lampides euchylas umbriel Fruhstorfer, 1915, *Zool. Meded.* **1** : 141, Waigeu.
Pepliphorus hylas waigeuensis Joicey & Talbot, 1917, *Ann. Mag. Nat. Hist.* **8** (20) : 220, Waigeu.
Lampides euchylas umbriel Seitz, *Macrolep.* **9**, pl. 151*i*, ♂ and ♀.

Similar in appearance above to *aruensis*, with wide white areas in both sexes, but without ochreous lunules in the anal area of the hind wing beneath. This and the next following subspecies have very similar genitalia characterized by large size, very bent and slightly twisted valves, and the long undulate harpes which project far beyond the ends of the valves. The ventral hook on the aedeagus is short and curved somewhat like that of *euchylas*, but altogether more robust.

DISTRIBUTION. Waigeu.

(5) ***Jamides aruensis poliamus*** Fruhstorfer

(Text-figs. 3 and 18)

Lampides euchylas poliamus Fruhstorfer, 1915, *Zool. Meded.* **1** : 141, Salawati.

Very like *umbriel*, but with a narrower white band in both sexes ; this feature is especially noticeable on the underside. In the female the blue areas are more extensive on all wings. The male genitalia do not differ perceptibly from those of the closely allied *umbriel*.

DISTRIBUTION. Mysol, Salawati, and West Dutch New Guinea.

(6) ***J. aruensis minor*** Rothschild

(Text-figs. 5 and 22)

Pepliphorus nemophila minor Rothschild, 1915, *Lep. Rep. Brit. Orn. Un. Exp.* p. 28, Utakwa R.

Lampides euchylas corana Seitz, *Macrolep.* **9**, pl. 152*a*.

Lampides euchylas f. ***corana*** Fruhstorfer, 1915, *Zool. Meded.* **1** : 142, Central New Guinea.

A well differentiated form resembling *euchylas euchylas*, in which the male is remarkable for the reduction of the white areas above ; that of the fore wing being much suffused with blue and in some specimens scarcely visible ; that of the hind wing is narrow and—unlike that of *euchylas*—has a concave outer margin. Beneath, the white band is also narrow and often somewhat obscured by fuscous. The specimens collected from the Utakwa River by Wollaston are listed by Rothschild under three headings : *Pepliphorus hylas* Cramer, *Pepliphorus nemophila* Butler, and *Pepliphorus nemophila minor* Rothschild, but are all referable to *J. aruensis corana* or *J. coritus*. The type of *minor* Rothschild is a small and discoloured example. The male organs are like those of *aruensis*, but the harpe is rounded and club-like, and the hook on the aedeagus is quite straight.

DISTRIBUTION. Utakwa R., Setekwa R., and Eilanden R., all in SE. Dutch New Guinea.

(7) ***J. aruensis dinawus*** ssp. n.

(Text-figs. 10 and 21)

A small race, the length of fore wing in the males ranging between 16 and 18 mm., and in the only female 18 mm. The blue ground colour in the male is rather deeper blue than that of *poliamus*, and the white areas—above and below— are usually narrower ; otherwise both sexes are not externally distinguishable from *poliamus*. In the male genitalic features however this race comes much nearer *minor* ; the harpe is straight and club-like, not extending so far as the valve end, and the aedeagus also is similar to that of *minor*.

♂ Holotype : Dinawa, Brit. N. Guinea, 4,000 ft., vii.1902, *A. E. Pratt*. B.M. Type No. Rh. 16445.

♀ Allotype : Aroa R., Brit. N. Guinea. B.M. Type No. Rh. 16446.

Other examples : As holotype, vii–ix.1902, 2 ♂ ; as allotype, 6 ♂ ; Ekeikei, B. C. N. Guinea, 1,500 ft., iii–iv.1903, *A. E. Pratt*, 3 ♂ ; Redscar Bay, B. N. Guinea, 1894, 1 ♂.

Jamides nemophila (Butler)

All the *nemophila* races can be readily identified by the complete series of pale metallic blue lunules on the underside of the hind wing.

(1) ***J. nemophila nemophila*** Butler

(Text-figs. 12–15)

Danis nemophila Butler, 1876, *Ann. Mag. Nat. Hist.* **4** (18) : 245, Pt. Moresby.
Lampides epilectus Grose-Smith, 1897, *Ann. Mag. Nat. Hist.* **6** (19) : 179, Fergusson **I**.
Lampides epilectus Grose-Smith, 1897, *Rhop. Exot., Or. Lyc.*, pl. xii, figs. 12–13.

Remarkable in the male above for the wide white areas on all wings, and for the heavy black margins which widen to as much as 2·5 mm. at the apex of the fore wing ; on the hind wing the large submarginal spots often merge with the margin. The claspers are much smaller than those of the previous species, and the harpes never extend as far as the end of the valves. Their rounded extremities are furnished with a short hook directed dorsally. The aedeagus tapers towards its apex and a long spade-shaped process projects well beyond the termination of the organ ; this when viewed in profile has the appearance of a spine.

Distribution. Brit. New Guinea, Fergusson I., Goodenough I., and Kiriwini, Trobriand Is. (Two males and a female in B.M. (N.H.) labelled " Kuranda, Queensland, *F. P. Dodd* " are probably not correctly labelled ; the only Australian locality for the species given by Waterhouse is Darnley Island.)

(2) ***J. nemophila eclectus*** Grose-Smith

(Text-fig. 11)

Lampides eclectus Grose-Smith, 1894, *Novitates Zoologicae*, **1** : 589, German New Guinea.
Lampides eclectus Grose-Smith, 1897, *Rhop. Exot., Or. Lyc.*, pl. xi, figs. 12–14.
Lampides euchylas eclectus Seitz, 1924, *Macrolep.* **9**, pl. 151*i*.

Differs from the preceding race in the narrower white areas above and below and the dark margins of the male above being not noticeably widened at the apex.

DISTRIBUTION. Mandated New Guinea : Stephansort, Astrolabe Bay, Finschhafen, Simbang.

(3) ***J. nemophila paralectus*** Grose-Smith

(Text-figs. 14–16)

Lampides paralectus Grose-Smith, 1897, *Rhop. Exot., Or. Lyc.*, pp. 7 and 9, pl. xi, f. 17, and 12, f. 1–2, New Ireland.

Lampides paralectus elath Fruhstorfer, 1916, *Arch. Naturgesch.* **81** (A6) : 33, Neu Mecklenberg.

Fruhstorfer's remarks on *paralectus* indicate some confusion ; he gives Neu Pommern (New Britain) as the type locality, and then describes the subspecies *elath* from Neu Mecklenberg (New Ireland) and Neu Hanover ; whereas Grose-Smith's type came from New Ireland and that locality is cited in the original description, so that *elath* must fall as a synonym of *paralectus*. Actually there is little observable difference in the series from New Britain except for a tendency in the males towards narrower dark margins and smaller submarginal spots above. The differences given by Fruhstorfer for females of his *paralectus* and *elath* are not apparent, and specimens of both sexes from New Hanover are identical with *paralectus*.

Above, the male *paralectus* is very like *eclectus*, but the female exhibits a great extension of the blue area on the fore wing at the expense of the black costal margin ; so that the black scaled veins above the cell stand out clearly on the blue ground. Beneath, in both sexes, the hind wing submarginal markings are of a more intense metallic blue than those of *nemophila* and *eclectus*, and even the arcuate submarginal line on the fore wing is of the same colour. The white band on the fore wing is longer, the tip reaching well into cellule 5. Comparison of the male genitalia with those organs in *nemophila* shows that the aedeagus is decidedly longer and that the small hook at the extremity of the harpe is more pronounced.

DISTRIBUTION. Bismarck Archipelago.

(4) ***J. nemophila albipatulus*** ssp. n.

(Pl. 21, figs. 5–8. Text-fig. 13)

From Rook Island near the western extremity of New Britain comes a race closely related to *paralectus*, and having similar genitalia ; it exhibits certain consistent external characters however that render a new name desirable. In size it is larger (fore wing length in the male being 19–20 mm.), and its general appearance in both sexes is very similar to the New Ireland race, but the submarginal spots in the male hind wing above are reduced, and in three specimens are only represented by a dark interrupted line in cellules 2 and 3 ; the blue area in the female is shaded with an admixture of blackish scales that give it quite a blue-grey tone. Both sexes beneath resemble the preceding race, but the white bands on all wings are wider, and that of the fore wing is curtailed in cellule 5 by a dusky rectangular shade ; the arcuate submarginal line on the fore wing is whitish, and the hind wing lunules are larger but finer.

♂ Holotype : Rook I., vii. 1913, *A. S. Meek*, B.M. Type No. Rh. 16447.

♀ Allotype : Same data. B.M. Type No. Rh. 16448.

Other examples : Rook I., vii–viii. 1913, *A. S. Meek*, 9 ♂, 5 ♀.

Jamides coritus (Guérin)

(1) ***J. coritus coritus*** Guérin

(Pl. 21, figs. 9–10. Text-figs. 8 and 23)

Damis coritus Guérin, 1831, *Voy. Coquille* (*Atlas*), t. 18, f. 3, Dory.
Damis coritus Boisduval, 1832, *Voy. Astrolabe Ent.* **1** : 68, Offack and New Guinea.
Lampides euchylas hyphasis Fruhstorfer, 1915, *Zool. Meded.* **1** : 142, Sekroe, Mcluer Bay.

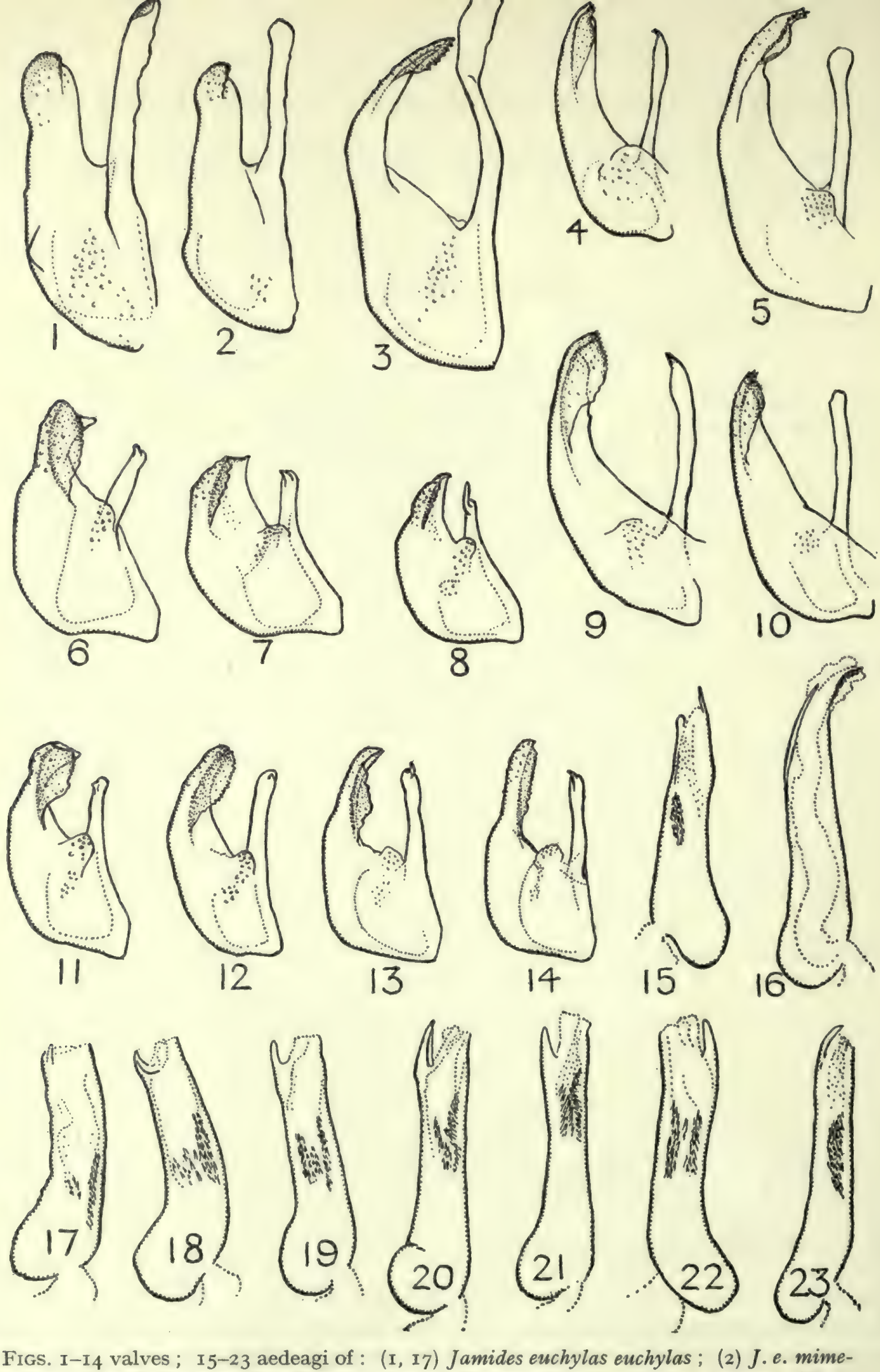
Besides the difference mentioned in the key this species differs from *J. aruensis poliamus* above, by having heavy black margins on all wings, and heavy black submarginal spots on the hind wings ; the latter being even heavier than those of *nemophila*. Guérin's figure is of the upper surface, and portrays these characters so well that—as *nemophila* does not occur in Western New Guinea— there can be no doubt of the identity of Guérin's insect. The female is like that of *J. aruensis poliamus* but the white band is narrower, and the blue area above is reduced so that it only occupies the cell and the base of the cellules below. In this race the paired interneural blue streaks are only present in cellules 2 and 3 of the underside hind wing. In his description of *hyphasis*, Fruhstorfer mentions the white anteterminal markings, the three to four interneural anal blue streaks, and the type locality Sekroe, Mcluer Bay ; these three items indicate almost certainly that his type was an example of *coritus*. Unfortunately this type is not in the B.M. (N.H.), and a male paratype from Triton Bay, and the female allotype from SW. New Guinea are both referable to *J. aruensis poliamus*. No doubt the name was erected for a mixed series which did not wholly conform to the description, and it is very fortunate that the author stated the locality of the type and gave sufficient evidence of its identity. The male genitalia are similar to those of *nemophila*, but both the harpe and the valve are shorter, and the latter is broader than in that species. The shovel-shaped structure projects only slightly beyond the end of the aedeagus, and in profile is curved inwards. Near the termination of the harpe is a curved hook pointing outwards and in the same direction as the harpe ; in the other *coritus* races this hook is straight and directed towards the dorsum.

DISTRIBUTION. Mysol, Salawati, Dorey Bay, Arfak Mts., Wandesi, I. of Mioswar, Kapaur, Fak Fak, and Triton Bay.

(2) ***J. coritus pseudeuchylas*** Strand

(Text-fig. 7)

Cupido (*Lampides*) *pseudeuchylas* Strand, 1911, *Mitt. zool. Mus. Berl.*, p. 471, Biwak, Sepik R.
Lampides euchylas phasis Fruhstorfer, 1916, *Arch. Naturgesch.* **81** (A6) : 34.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FIGS. 1–14 valves ; 15–23 aedeagi of : (1, 17) *Jamides euchylas euchylas* ; (2) *J. e. mimetica* ; (3, 18) *J. aruensis poliamus* ; (4, 19) *J. a. ariel* ; (5, 22) *J. a. minor* ; (6) *J. coritus setekwaensis* ; (7) *J. c. pseudeuchylas* ; (8, 23) *J. c. coritus* ; (9, 20) *J. aurensis aruensis* ; (10, 21) *J. a. dinawus* ; (11) *J. nemophila eclectus* ; (12, 15) *J. n. nemophila* ; (13) *J. n. albipatulus* ; (14, 16) *J. n. paralectus.*

Only differs macroscopically from *coritus coritus* by a strong tendency to produce interneural metallic blue bars in cellule 4 of the hind wing. This feature is however variable, sometimes the bars are vestigial, and occasionally completely missing; a series will often present a whole range of intergrades. The small hook on the harpe is always pointed towards the dorsum.

DISTRIBUTION. Islands in Geelvink Bay, Humbolt Bay, Mt. Bougainville, Aitape, Wangaar R., Etna Bay, Aroa R., Vailala R.

(3) ***J. coritus setekwaensis*** ssp. n.

(Text-fig. 6)

Varies considerably in size and often produces very large individuals; the length of the fore wing in the male ranging from 17 to 23 mm., though most examples are above 20 mm. The blue tone above is paler and less metallic than that of the foregoing races, and the dark margins and submarginal spots are less developed. Beneath, interneural streaks are present only in cellules 2 and 3 of the hind wing as in *coritus coritus*. The genitalia are larger than those of the other subspecies, and the hook at the harpe end is longer and more tapered than that of *pseudeuchylas*; it is directed dorsally.

♂ Holotype: Upper Setekwa R., Snow Mts., Dutch New Guinea, 2,000–3,000 ft., vii.1919, *A. S. Meek*, B.M. Type No. 16449.

♀ Allotype: Same data, B.M. Type No. Rh. 16450.

Other examples in B.M. (N.H.): Same data, 9 ♂, 3 ♀; Utakwa R., 2,500–3,000 ft., i–ii.1913, *A. F. R. Wollaston*, 5 ♂ 5 ♀; Canoe Camp, Utakwa R., xi.1912, *Wollaston*, 1 ♂; Base Camp, Utakwa R., xi–xii.1912, *Wollaston* 1 ♂; near Oetakwa R., up to 3,500 ft., x–xii.1910, *Meek*, 1 ♂, 4 ♀; Eilanden R., SE. Dutch New Guinea, 1910–12, *Meek*, 4 ♂, 1 ♀.

Jamides aleuas (Felder)

In addition to the structural characters mentioned in the preface this species can always be recognized by the pattern of the underside. The dark portions of all wings are uniform fuliginous, and are without any indication of the pale edged median series of maculations to be seen in all the preceding species; the submarginal markings are however much in evidence, especially in the hind wings, where the distal row are distinctly wedge-shaped. A number of geographical races have evolved, which differ in such characters as the blue tone of the males above and the width of the white or blue cuneiform spots on the underside of the hind wing.

(1) ***J. aleuas coelestis*** Miskin

Danis coelestis Miskin, 1891, *Ann. Queensld. Mus.* **1**: 50, Queensland.
Lampides aleuas coelestis Seitz, 1923, *Macrolep.* **9**, pl. 142*b*.

This, the most divergent race of the collective species, is easily recognized by the bright shining blue colour of the male above, the almost greenish-blue of the blue areas in the female, and by the large and very white submarginal series of wedge-spots beneath on both fore and hind wings.

DISTRIBUTION. Queensland.

(2) ***J. aleuas sarsina*** Fruhstorfer

Lampides aleuas sarsina Frustorfer, 1916, *Arch. Naturgesch.* **81** (A6) : 31, Aru.

The blue areas in both sexes are deeper and softer blue than the preceding. On the under surface the submarginal wedge-spots are smaller, and though those on the hind wing are white, those on the fore wing are metallic blue.

DISTRIBUTION. Aru.

(3) ***J. aleuas nitidus*** ssp. n.

Male upperside : The black margins are heavy, 2–3 mm. at the fore wing apex ; the blue areas rather more intense than in *sarsina* ; the white area on the fore wing is intersected by the markedly blue scaled veins. Female upperside : Very like that of *sarsina* ; the blue areas are more extensive ; that of the fore wing covering the base of cellule 2, the whole of the discoidal cell, and extending into the black area almost to the costa. Underside : As in *sarsina* in both sexes, but the hind wing cuneiform spots are often tinted with whitish-blue.

♂ Holotype : Upper Aroa R., Brit. N. Guinea, *A. S. Meek*, B.M. Type No. Rh. 16451.

♀ Allotype : Same data, B.M. Type No. Rh. 16452.

Other material in B.M. (N.H.) examined ; Sattleberg, Germ. N. Guinea, xii.1905, *C. Wahnes*, 3 ♂ ; Simbang, 1 ♂, 1 ♀ ; Germ. New Guinea, 1 ♂ ; Sariba I., *A. S. Meek*, 5 ♂ ; Aroa R., *A. S. Meek*, 3 ♂, 3 ♀ ; Dinawa, Brit. N. Guinea, *A. E. Pratt*, 4 ♂ 4 ♀ ; Port Moresby, 3 ♂, 2 ♀ ; Hydrographer Mts., B.N.G., *Eichhorn Bros.*, 2 ♂ ; Brown R., B.N.G., 98, *Weiske*, 2 ♂ ; Kebia, B.N.G., *A. E. Pratt*, 1 ♂ ; Ekeikei, B. N. G., *A. E. Pratt*, 1 ♀.

(4) ***J. aleuas aleuas*** Felder

Lycaena aleuas Felder, 1865, *Reise Novara Lep.* **2** : 268, Tab. xxxiii, figs. 15–16, Mysol.

This and all the following subspecies have all the submarginal markings on the underside—including the cuneiform spots—brilliant metallic blue. In *aleuas* the white areas on both surfaces are somewhat restricted in both sexes.

DISTRIBUTION. Mysol.

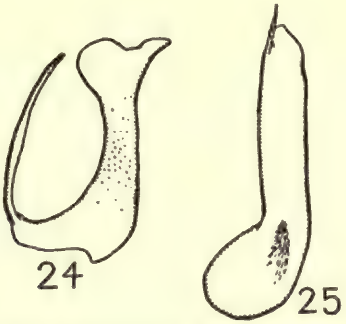
(5) ***J. aleuas alcas*** Felder

(Text-figs. 24 and 25)

Lycaena alcas Felder, 1865, *Reise Novara Lep.* **2** : 268, pl. xxxiii, figs. 27–28, Waigeu.

The male is very like that of *aleuas*, but the white areas on all wings beneath are distinctly wider. In the female these areas on both surfaces are similarly extensive, and the blue area on the fore wing extends—like that of *nitidus*—almost to the costa.

DISTRIBUTION. Waigeu.



FIGS. 24–25. *Jamides aleuas alcas* ♂. (24) Valve; (25) aedeagus.

(6) ***J. aleuas pholes*** Fruhstorfer

Lampides aleuas pholes Fruhstorfer, 1916, *Arch. Naturgesch.* **81** (A6) : 32, New Guinea and Darnley Island.

The author states that the original specimen, or specimens, was or were in the Courvoisier collection, and gives the locality New Guinea (without further details); he does not designate a type. Enquiries addressed to the Natural History Museum, Basel, where the Courvoisier collection is now preserved, elicited a reply from Dr. Huber in which he said that *pholes* was not represented in the collection, and that the name does not appear in the catalogue. This suggests that either the type has been lost, or that Fruhstorfer omitted to label it. In the absence of the type, careful study of the description suggests at once that it refers to specimens identical with a series in the B.M. (N.H.) coming from various somewhat scattered localities in Dutch New Guinea. The male is deep blue above, almost as deep a colour as that of *allectus*, and the white area on the fore wing is variable in extent, but always less than that of *aleuas*, and in some examples reduced almost to vanishing point. In the female the white areas are also reduced, but not as much as in that sex of *allectus*. On the underside the wedge-shaped spots are in some individuals whitish-blue; they are never as white as those of *coelestis*.

DISTRIBUTION. Dorey Bay, Manokwari, Arfak, Weyland Mts., Fak Fak, Utakwa R., and Schouten Is.

(7) ***J. aleuas allectus*** Grose-Smith

Lampides allectus Grose-Smith, 1894, *Novitates Zoologicae*, **1** : 576, Humbolt Bay.

Above the male is darker blue, with dark margins of approximately 1 mm., and with, on the hind wing, dusky marginal spots as in *J. coritus*.

DISTRIBUTION. Humbolt Bay.

(8) ***J. aleuas jobiensis*** ssp. n.

A short series from the island of Jobi have affinities with *allectus* yet exhibit differential characters of subspecific importance. These two races stand apart from all the others in their much deeper blue colour, and by the presence of dusky submarginal spots on the upperside of the male hind wing. The females are without any blue areas above, a character which they share only with the ssp. *sarmice* Fruhstorfer. In the following description all comparisons are with *allectus* Grose-Smith. Male : Above deep blue of a more violaceous tint ; dark margins slightly wider, and on the hind wing fused with the submarginal spots ; the white areas of variable extent on the primaries, and wider than in *allectus* on the secondaries. Female : Above, with the white areas wider and less smoky, although somewhat blurred at the edges. Underside in both sexes : White areas all more extensive ; that of the secondaries widening from approximately 5 mm. at the centre of the wing to 7 mm. at the costa ; that of the primaries reaching distally almost to the inner row of blue lunules. The blue markings are all smaller so that, on the secondaries the row of cuneiform spots appears to be a greater distance from the inner series of lunules ; the black intervening areas being correspondingly enlarged.

♂ Holotype : Ansus, Jobi, iv–v.97, *W. Doherty*, B.M. Type No. Rh. 16453.

♀ Allotype : Same data, B.M. Type No. Rh. 16454.

Other examples : Same data, 3 ♂, 2 ♀ ; Ansus, Jobi, 1892, *Doherty*, 3 ♂, 1 ♀ ; Jobi, 2 ♂, 2 ♀.

(9) ***J. aleuas sarmice*** Fruhstorfer

(Pl. 21, figs. 11–12)

Lampides aleuas sarmice Fruhstorfer, 1916, *Arch. Naturgesch.* **81** (A6) : 32, Neu Mecklenberg.

There are no specimens of *aleuas* from the Bismark Archipelago in the B.M. (N.H.), and as far as is known the female type—now in the Natural History Museum, Basel—is unique. Thanks are due to Dr. F. Keiser and Dr. A. Huber of that institution for their kind co-operation in supplying a photograph of the type from which the figure on Pl. 1 has been produced.

TWO NEW SPECIES OF THE GENUS *JAMIDES* (LEPIDOPTERA LYCAENIDAE)

By G. E. TITE

British Museum (Natural History), Tring, Herts.

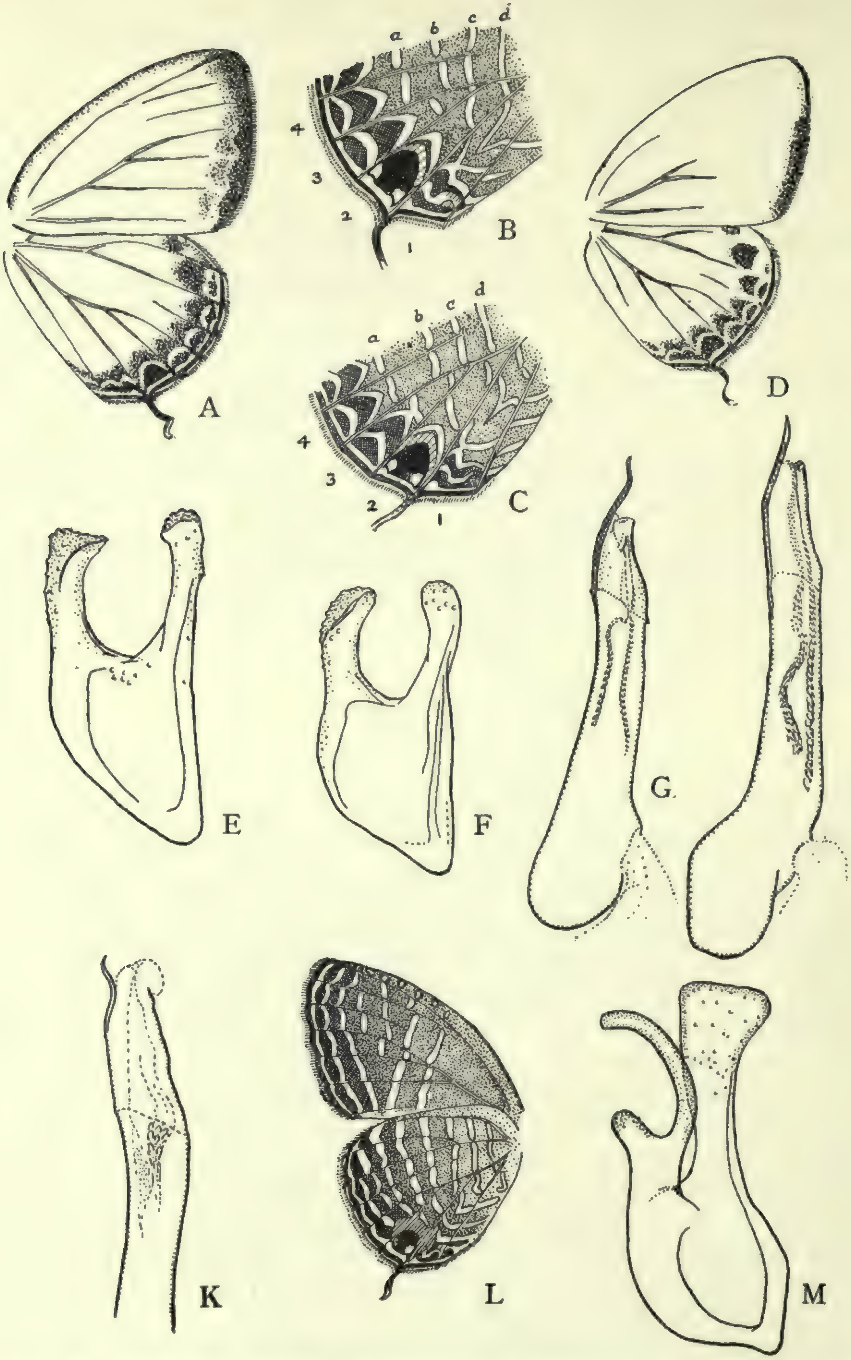
THE two new species described below both exhibit a characteristic that has been observed in some other members of the genus *Jamides* Huebner ; namely, that both are linked by the structure of the male genitalia with species of quite dissimilar external appearance, while showing the outward characters of other species whose genitalic structure is very distinct. The types and other material examined are in the British Museum (Natural History).

Jamides puloensis sp. n.

(Text-figs. K, L, & M)

The upper side of the male is shining white with, in some lights, the least suspicion of blue, and the pattern of the underside is distinctly visible shining through from below. A hair-like dark marginal line, and a short irregular broken bar at the tornus, are the only other markings on this surface. In the fore wing of the female the white ground is restricted by a wide dusky margin, which attains a width of 8 mm. at the costa, and at its narrowest point at vein three is at least 4 mm. The hind wing is bounded by a dark marginal line, which is followed by a series of clear black submarginal spots, and they in turn are followed by a series of dusky lunules ; the tornal submarginal spot of the series is large, and between it and the accompanying dusky lunule are lunules of blue and yellow. The costal area above vein six is dusky. In both sexes the fringes are fuscous, quite plain on the fore wing, those on the hind wing are however whitened interneurally at the base, and so have a checkered appearance. The white striping, its disposition, and the prominent orange area above the tornal spot of the hind wing, can best be understood by reference to Text-fig. L. Size is evidently a variable character ; the length of the fore wing varies considerably, one male being 19 mm., three are 15 mm., and the two females are 16 and 18 mm. respectively.

Although in general appearance this species resembles some forms of *J. aratus* Cramer, the male genitalia are definitely of the same structure as those of *J. cyta* Boisduval, exhibiting the same bifid clasper with its dorsal half displaying an outward pointing sickle-shaped hook ; the ventral portion is, however, somewhat spatulate,



FIGS. A to M. Some New *Jamides*. A–♂ uppers., B–unders. hindw., of *J. aratus lunata*; D–♂ uppers., C–♂ unders., hindw., F–♂ clasper., G–aedeagus, of *J. fractilinea*; E–♂ clasper, H–aedeagus, of *J. celeno optimus*; K–♂ aedeagus, L–♂ unders., M–♂ clasper, of *J. puloensis*.

and much wider than the rod-like process in *cyta*. The aedeagus is longer and more slender than that of *cyta*.

♂ Holotype: Pulo Laut, Borneo, vi.1891, *Doherty*, B.M. Type No. Rh. 16455. ♀ Allotype: same data, B.M. Type No. Rh. 16456. Other examples: same locality, v. and vi.1891, 3 ♂, 1 ♀.

Jamides fractilinea sp. n.

(Text-figs. C, F, & G)

The male is above very like that of *J. aratus lunata* de Niceville also from Celebes, but it differs as follows:—the fore wing is pointed; the marginal black band is represented by ill-defined lunules, and only reaches as far as vein four; the submarginal lunules—when present—are always indistinct, and they also do not proceed beyond vein four. The hind wing is identical with that of *lunata*. The female is dingy brown on the upper surface, only in occasional instances somewhat lighter in the centre and at the base of the fore wing; whereas in *lunata* many examples exhibit a large basal whitish area which often covers more than a third of the wing. Marginal markings on the hind wing consist of a marginal dark line, a white line, inwards of which is a series of black half-moon shaped spots vaguely encircled by yellowish white. Beneath, the pattern is similar to that of *lunata* but:—the ground colour is dull earthy brown; the submarginal spots are chocolate, and contrast noticeably with the series of black lunules; all the white discal markings are narrower, and more widely spaced; the portions of the paired white median lines above vein three on the fore wing are evenly arched. The differences on the hind wing are explained by the figures B and C, in which the white lines have been lettered from *a* to *d*, and the interneural spaces numbered from *1* to *4*; this facilitates reference to any portion of a line, thus *a4* is the outermost stripe in interspace *4*. In *fractilinea* it can be seen that:—the line *a* is nearer to the series of submarginal lunules, so much so that *a3* is often united with lunule *3*; it is also set at a more acute angle; line *b* is represented in the figure by the stripes *b4* and *b5* only; stripes *c2* and *c3* are moved outwards to a point midway between lines *c* and *b*, breaking the continuity of the line *c*; the line *d* is similarly broken by the outwards displacement of *d2*. These apparently slight characters obtain throughout the series. Notwithstanding the great divergence of external characters, the male armature points to kinship with *Jamides celeno* Cramer, and shows no affinities at all with the externally similar *J. aratus lunata*. The valves are bifid, similar in general conformation to those of *celeno*, but their extremities are equally rounded, and their two arms are of approximately equal length. The aedeagus is shorter, stouter in proportion, and the terminal spine-like process is longer.

♂ Holotype: Macassar, Celebes, 1896, *Doherty*, B.M. Type No. Rh. 16457. ♀ Allotype: as holotype, B.M. Type No. Rh. 16458. Other material examined: same data 21 ♂, 25 ♀; Macassar, ix.1896, *A. Everett*, 1 ♂; S. Celebes, vii–ix.1891, *W. Doherty*, 8 ♂, 10 ♀; Pic de Bonthain, 1–2,000 m., 1896, *W. Doherty*, 4 ♂, 1 ♀; Region basse entre Maros and Tjamba, 1896, *W. Doherty*, 5 ♂, 9 ♀; Samanga, xi., *Fruhstorfer*, 2 ♂; Lompa Battau, S. Celebes, 3,000 ft., iii.1896, *Fruhstorfer*, 2 ♀, Bua Kraeng, S. Celebes, 5,000 ft., ii.1896, *Fruhstorfer*, 2 ♂; Toli Toli, N. Celebes, xi–xii.1895, *Fruhstorfer*, 1 ♂; Sula Mangoli, x.1897, *W. Doherty*, 1 ♂.

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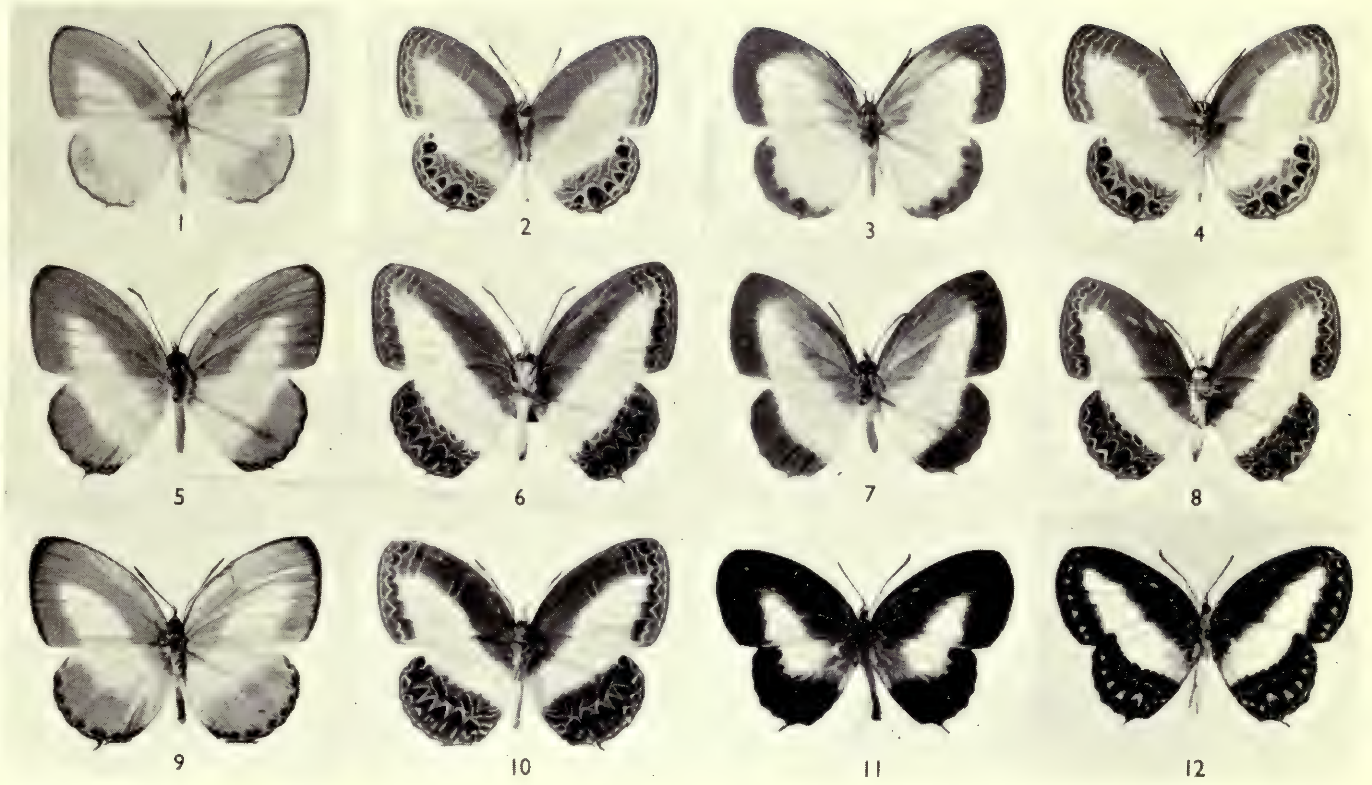

PLATE, 21

Figs. 1–12. *Jamides euchylas* Complex. (1) ♂ upperside, (2) ♂ underside, (3) ♀ uppers., (4) ♀ unders. of *J. euchylas mimetica* ; (5–8) same of *J. nemophila albipatulus* ; (9) uppers ; (10) unders. of *J. coritus coritus* ♂ ; (11–12) same of *J. aleuas sarmice* ♀ (holotype).

A.
O.

NOTES ON EAST AFRICAN EPHEMEROPTERA, WITH DESCRIPTIONS OF NEW SPECIES

D. E. KIMMINS

BRITISH MUSEUM
17 AUG 1960
NATURAL HISTORY

BULLETIN OF
THE BRITISH MUSEUM (NATURAL HISTORY)
ENTOMOLOGY Vol. 9 No. 6
LONDON: 1960

NOTES ON EAST AFRICAN EPHEMEROPTERA, WITH DESCRIPTIONS OF NEW SPECIES

BY

D. E. KIMMINS Xulf.

Department of Entomology, British Museum (Natural History)

Pp. 337–355 : 10 *Text-figures*

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NOTES ON EAST AFRICAN EPHEMEROPTERA, WITH DESCRIPTIONS OF NEW SPECIES

By D. E. KIMMINS

THIS paper is based upon material collected by Drs. P. S. Corbet, R. Hartland-Rowe and A. Tjönneland, chiefly in Uganda. Most of the material including the types of new species, has been presented to the British Museum (Nat. Hist.), for which the author wishes to express his thanks to the respective donors. Notes are given on various species of *Cloëon*, *Procloëon*, *Centroptilum* and *Adenophlebiodes*, two new species are described and one homonym is re-named. Publication of notes on species of the family Caenidae has been postponed pending the completion of revisionary work being undertaken by Mr. Thomas B. Thew, of East Moline, Illinois.

Family OLIGONEURIIDAE

Elassoneuria candida Eaton

(Text-fig. 1)

UGANDA : Victoria Nile, Karuma Falls, 1959 (*P. S. Corbet*).

This species has been synonymized with *trimeniana* (McLachlan) by Ulmer (1916, *Ark. Naturg.* **81A** (7) : 4), but examination of the ventral plates of the female types of the two species has shown that in *trimeniana* the lateral processes of the ninth segment are about twice as long as the ventral plate, whereas in *candida* they are only about as long as the ventral plate. In the present series there is some variation in the relative length of the lateral processes of the ninth segment, which may be clearly longer than the ventral plate but not as much as twice as long. It is possible that examination of a series of females of *Elassoneuria* from Natal may show variation overlapping that of the Uganda examples, but for the time being it seems desirable to keep *trimeniana* distinct from the Equatorial species *candida*. Ulmer's 1916 description of *trimeniana* was based mainly upon Equatorial specimens and the Uganda examples conform reasonably to this description.

In 1916 Ulmer makes no mention of the ♂ genitalia, but in 1920 (*Stett. ent. Ztg.* **81** : 128) in his key to the genera of the Oligoneuriidae, he describes the forceps as being three-segmented, the basal segment very long, the two apical segments very small. In the Uganda examples there is a microscopic *fourth* segment ; whether Ulmer's examples were really only three-segmented or whether this minute fourth segment had been detached or over-looked, one cannot say. Its occurrence in the Uganda examples removes one of the characters separating *Elassoneuria* from *Oligoneuriopsis*, but the wing-venation of the Uganda material is definitely that of *Elassoneuria*, as figured by Barnard.

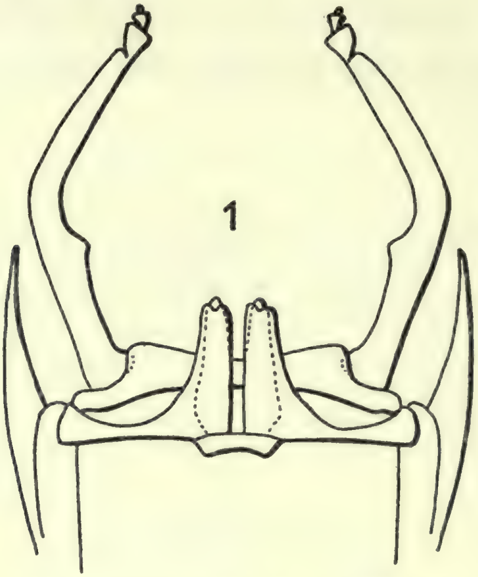

FIG. 1. *Elassoneuria candida* Eaton. ♂ Genitalia, dorsal.

Elassoneuria trimeniana (McLachlan)

Zambezi (Chipepo's), 20.iv.1956 (*G. Fryer*).

A single female is referred with some doubt to this species, chiefly on the grounds that the lateral processes of the ninth segment are much longer than in the type of *candida*. The acute points bordering the excision of the ventral plate are asymmetric, one being longer than the other.

Family HEPTAGENIIDAE

Afronurus ugandanus Kimmins

TANGANYIKA: L. Victoria, Mwanza Pier, 11–13.viii.1956 (*P. S. Corbet*).

Family BAËTIDAE

Cloëon dentatum Kimmins

UGANDA: Jinja, at light, iii.1956 (*P. S. Corbet*).

Some examples sent by Dr. A. Tjönneland from Jinja differ slightly from the figure of the paratype in the blunter outline of the arched plate above the forceps-base. The difference is probably due to the figure having been drawn from a cleared example ; it is certainly insufficient to be considered a specific character.

DISTRIBUTION. Uganda.

Cloëon scitulum Kimmins

UGANDA : Jinja, 4, 24.v.1956 ; Entebbe, 31.xii.1955 ; Albert Nile, Pakwach, 26.iv.1956 (*P. S. Corbet*).

KENYA : L. Victoria, Kavirondo Gulf, Kisumu, 1956 (*P. S. Corbet*).

DISTRIBUTION. Nyasaland, Uganda, Kenya.

Cloëon perkinsi Barnard

(Text-fig. 6)

UGANDA : Jinja, vi.1956 ; Kampala, 6.iv.1956 ; Entebbe, 1956 ; Albert Nile, Pakwach, 26–29.iv.1956 (*P. S. Corbet*).

TANGANYIKA : L. Tanganyika, Kigoma, 16–20.viii.1956 ; L. Victoria, Mwanza Pier, 11–13.viii.1956 (*P. S. Corbet*).

These East African examples, which I believe to be Barnard's species, show considerable variation in the pattern of the abdomen. In a female imago from Jinja, the pattern agrees quite well with that described and figured by Barnard, but others show a progressive reduction of the red pigmented pattern until it is much reduced. In subimagines the narrow lateral line is often absent. I have seen few male imagines but in the subimagines the red pigment is usually much less pronounced.

In the male imago (alcohol), the turbinate eyes are honey-yellow. Head deep cream-coloured, ocelli ringed with reddish brown, two basal segments of antenna marked with reddish at apices. Thorax pale shining brown, legs creamy white. Wings hyaline with pale veins, except at extreme base of wing, where they are pale fuscous. Dorsum of abdomen reddish brown, with two narrow, sinuous, yellow lines enclosing a spot of reddish brown (or forming pale divergent lines, or dark spots absent) on segments two to seven, and with a pale yellowish lateral line. Sternites yellowish. Forceps whitish.

DISTRIBUTION. S. Africa, Uganda, Tanganyika, ? Gold Coast.

Procloëon areolatum (Navás)

UGANDA : Kampala, Makerere, 16.v.1955, viviparous ♀ (*R. Hartland-Rowe*) ; Entebbe, 17–18.vi.1958 (*P. S. Corbet*).

PREVIOUS DISTRIBUTION. Congo.

Procloëon cylindroculum Kimmins

(Text-fig. 6)

UGANDA : Entebbe, 31.xii.1955, 17–18.vi.1958 (*P. S. Corbet*) ; Jinja, 4.iii.1954 ; Kaazi, 16.ii.1954 (*R. Hartland-Rowe*).

A fairly long series taken at light at Entebbe by Dr. Corbet enables me to give descriptions of the female imago and of the male and female subimagines. First, however, it is necessary to correct a statement in the original description of the male abdomen. Lines 3 and 4 from foot of p. 865 should read " Abdomen with basal tergite fuscous, apex translucent whitish."

♀ Imago (in alcohol). Head whitish, eyes greyish black, posterior ocelli encircled with black. Antenna white, basal segment marked with black apically on both sides, second segment white, terminal bristle fuscous. Pronotum white, with two reddish purple, lateral lines, the upper shorter than the lower, which traverses the entire thorax as a narrow lateral line to link up with the abdominal lateral line. Pterothorax whitish, faintly yellowish brown above. Legs whitish. Wings hyaline, with pale fuscous veins, venation as in male. Abdomen whitish, with an interrupted, reddish purple, lateral line, much as in the figure of the female subimago. Cerci white, banded at intervals with deep reddish purple.

Length of fore wing, 5 mm.

♀ Allotype (in 2% formaldehyde solution) in British Museum (Nat. Hist.).

♂ Subimago (in alcohol). Head creamy white, turbinate eyes cylindrical, pale orange-brown, posterior ocelli bordered on inner margins with purplish black, antenna whitish. Pronotum whitish, with faint fuscous markings. Pterothorax pale brownish above, with large creamy white areas. Legs whitish. Wings whitish hyaline, with white veins. Abdomen whitish, in strongly marked specimens with a pair of reddish brown spots near apical margin of fourth tergite. A pair of larger transverse spots near apical margin of seventh tergite and the greater part of the eighth and ninth tergites reddish, which colour may also extend on to the tenth tergite. The extreme apical margin of tergites two to seven are finely reddish and there may be traces of faint fuscous lateral lines on the same segments. Sternites are whitish as are the forceps. Cerci white, sometimes faintly annulated at intervals with purplish. The intensity of colour of the tergites varies considerably in individuals, possibly due to age.

♀ Subimago. Ground colour whitish, marked with reddish much as in the imago.

DISTRIBUTION. Nyasaland, Uganda, Tanganyika.

Procloëon rhodesiae (Barnard)

(Text-figs. 2, 6)

UGANDA: Kampala, Port Bell, 6–7.iv.1956; Jinja, at light, 4.v.1956, 15.vi.1956, 2.viii.1956; Mbanga Forest, near Mpigi, 1958; Entebbe, 17–18.vi.1958 (*P. S. Corbet*).

KENYA: L. Victoria, Kavirondo Gulf, Kisumu, 1956 (*P. S. Corbet*).

TANGANYIKA: R. Malagarazi, Katare, 27.viii.1954 (*R. H. Lowe*).

Demoulin has retained *rhodesiae* in *Cloëon* because the material before him was lacking in posterior tarsi and Barnard gives no details as to the relative proportions of the tarsal segments of the posterior legs. I have not examined Barnard's type specimens, but there are in the British Museum three females from Salisbury (one of the type localities), collected in 1900 by G. A. K. Marshall. Though a little faded, these agree well in the pattern of the costal margin of the wing ; the medio-dorsal raw sienna stripe on the abdomen is present but the " triangular castaneous patch in postero-lateral corner of segments 3–6 dorsally " is present in segments three and six only. It is possible that the species may vary in this respect or that the description may be inaccurate. In any case, I do not consider that the difference between the description and the British Museum examples to be of specific importance. The important fact is that our examples have the basal[1] segment of the posterior tarsus about three times as long as the following segment and the species should therefore be transferred to the genus *Procloëon*.

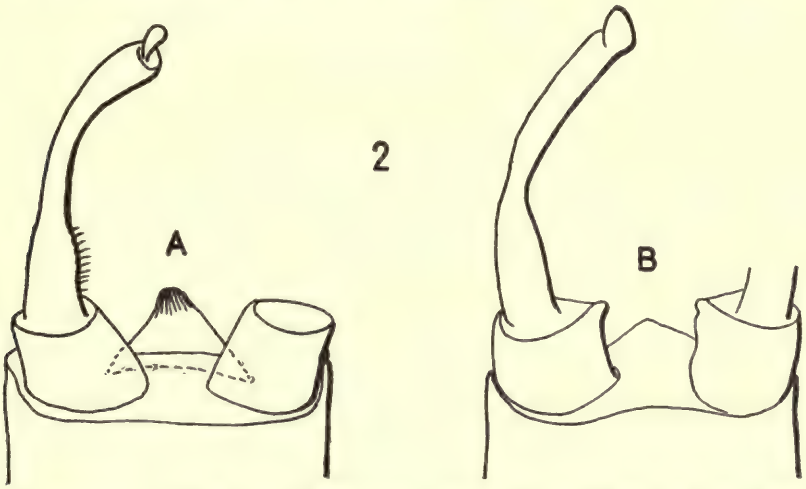

FIG. 2. ♂ Genitalia, ventral, of (A) *Procloëon rhodesiae* (Barnard) and (B) *Pseudocloëon camerunense* Ulmer.

The British Museum also has a female with similarly marked wings from Uganda, Kampala. This example has the triangular, reddish castaneous patches on segments three and six, but the median dorsal stripe is represented only by reddish transverse lines at the apices of each segment. Dr. Corbet's collection contains three females in alcohol, also from Kampala. In these, the pterostigmatic pattern is stronger than in the pinned examples and the triangular patches on segments three and six are reddish but less distinct. I am prepared, however, to accept these examples as being within the range of variation of *Procloëon rhodesiae*. To Barnard's description of the female can be added that there is a pre-apical reddish ring on each femur, and that there is a small reddish spot in the centre of the basal margin of the sixth to ninth segments.

♂ Imago (in alcohol). Head creamy white, turbinate eyes dilating dorsally, pale orange-yellow. Basal segment of antenna with a small black spot externally at apex. Posterior ocelli with inner margins blackish. Thorax pale brownish above,

---

[1] Strictly speaking, this should be termed the second segment, since the first is fused with the tibia.

with darker markings. Legs whitish, femora with faint reddish pre-apical rings. Wings hyaline, veins very pale, a small black spot on humeral cross-vein. Abdominal segments one to seven translucent whitish, lateral trachea marked with a fine blackish line. Towards apex of each tergite there is a narrow, transverse, reddish line and in the postero-lateral angle of segments three and six is a reddish brown, triangular patch. Segments eight and nine opaque whitish, tinged with bright reddish. Sternites five to eight with a small reddish spot at centre of apical margin. Forceps whitish. Cerci whitish, with a few deep reddish purple annulations.

In the preserved subimagines the main abdominal pattern can be seen, but there is little or no trace of the pterostigmatic markings of the female.

P. rhodesiae seems to be closely related to *P. areolatum* (Navás), judging by the figure of the female wing given by Demoulin. The pterostigmatic marking is slightly more extensive and differs in detail and the basal costal cross-veins are stronger in *areolatum*.

Procloëon smaeleni (Lestage)

UGANDA: Kampala, Makerere, 7, 30.v.1955 (*R. Hartland-Rowe*).

DISTRIBUTION. Congo, Ghana (Gold Coast), Sierra Leone, Uganda.

Pseudocloëon camerunense (Ulmer)

(Text-figs. 2, 3)

UGANDA: Jinja, 17, 22.v., 2.viii., 17.ix.1956; Entebbe, 1956 (*P. S. Corbet*).

These specimens do not agree exactly in the structure of the male genitalia as figured by Ulmer. He shows a much more definite point on the inner angle of the forceps-base and the triangular plate appears to come in front of, instead of behind, the forceps-base. I consider that these are merely differences in interpretation and not of specific value. There are also slight differences in the abdominal pattern and the Uganda examples are rather larger.

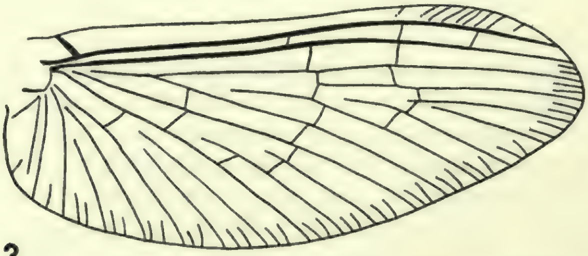

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FIG. 3. Wing of *Pseudocloëon camerunense* Ulmer.

PREVIOUS DISTRIBUTION. Cameroons.

Baëtis ? bellus Barnard

Uganda: Entebbe, 1956; Jinja, ix–x.1954 (*P. S. Corbet*).

These two specimens are referred here with some doubt. The abdominal pattern of the male is faded and obscure but the terminal segment of the forceps is small. The hind wing has no costal process. This genus is noted for the difficulty of identifying examples specifically and it seems more likely that its taxonomic difficulties will be solved by a study of the larvae than by multiplying descriptions based upon faded museum material.

Distribution. S. Africa.

Centroptilum montanum sp. n.

(Text-figs. 4–5)

Uganda: Mt. Elgon, 11,600 ft., R. Sasa, 29.xii.1954, 11 ♂ (*P. S. Corbet*).

♂ Imago (in alcohol). Head fuscous. Turbinate eyes (somewhat telescoped) brownish orange, with a definite fuscous margin, lower eyes grey. Antenna fuscous. Thorax chestnut-brown above, paler on sides. Legs medium or pale fuscous. Wings hyaline, slightly fumose, with brownish veins. Pterostigma with seven to ten cross-veins. Hind wing with three longitudinal veins, costal process bifid, arising from a broad base, basal process slender, hooked, apical process much as in *dicentrum* Demoulin. Abdominal segments two to seven pale translucent brownish, tergites two to six or seven with a distinct purplish transverse band at apical margin, remaining tergites very narrowly margined with the same colour. Sternites with similar but paler bands. Cerci and forceps pale fuscous. Forceps-base deeply divided, inner angles of each half produced in angular tooth-like callosities. Basal and second segments fused, terminal segment about one-third as long as one and two together, sausage-shaped.

Length of fore wing, 7 mm.

♂ Holotype mounted as microscope preparations, paratypes in 2% formaldehyde solution, British Museum (Nat. Hist.). In general appearance this species appears to be similar to *C. dicentrum* Demoulin (Kivu, Mt. Muhi), but is rather smaller. There are fewer pterostigmatic cross-veins, the hind wing is a little broader and the basal costal process more slender. The forceps appear to differ considerably, especially in the shape of the forceps-base. The forceps of *dicentrum* are figured as much closer together than in *montanum*, and suggest that the centre of the forceps-base may have collapsed. *C. dicentrum* also appears to have the basal and second segments less completely fused.

Centroptilum loweae Kimmins

(Text-figs. 4, 6)

Uganda: Entebbe, 1956: Jinja, 14.v.1956 (*P. S. Corbet*); Kaazi, 11.viii.1954 (*R. Hartland-Rowe*).

Tanganyika: L. Victoria, Bukoba, 10.viii.1956 (*P. S. Corbet*).

The original specimens of *C. loweae* were considerably bleached and I am therefore giving descriptions from more recent material.

♂ Imago (in alcohol). Head medium fuscous, with two narrow cream stripes on upper surface between posterior ocelli. Antenna pale fuscous, apical half of terminal style whitish. Turbinate eyes large, obscuring lower eyes from above,

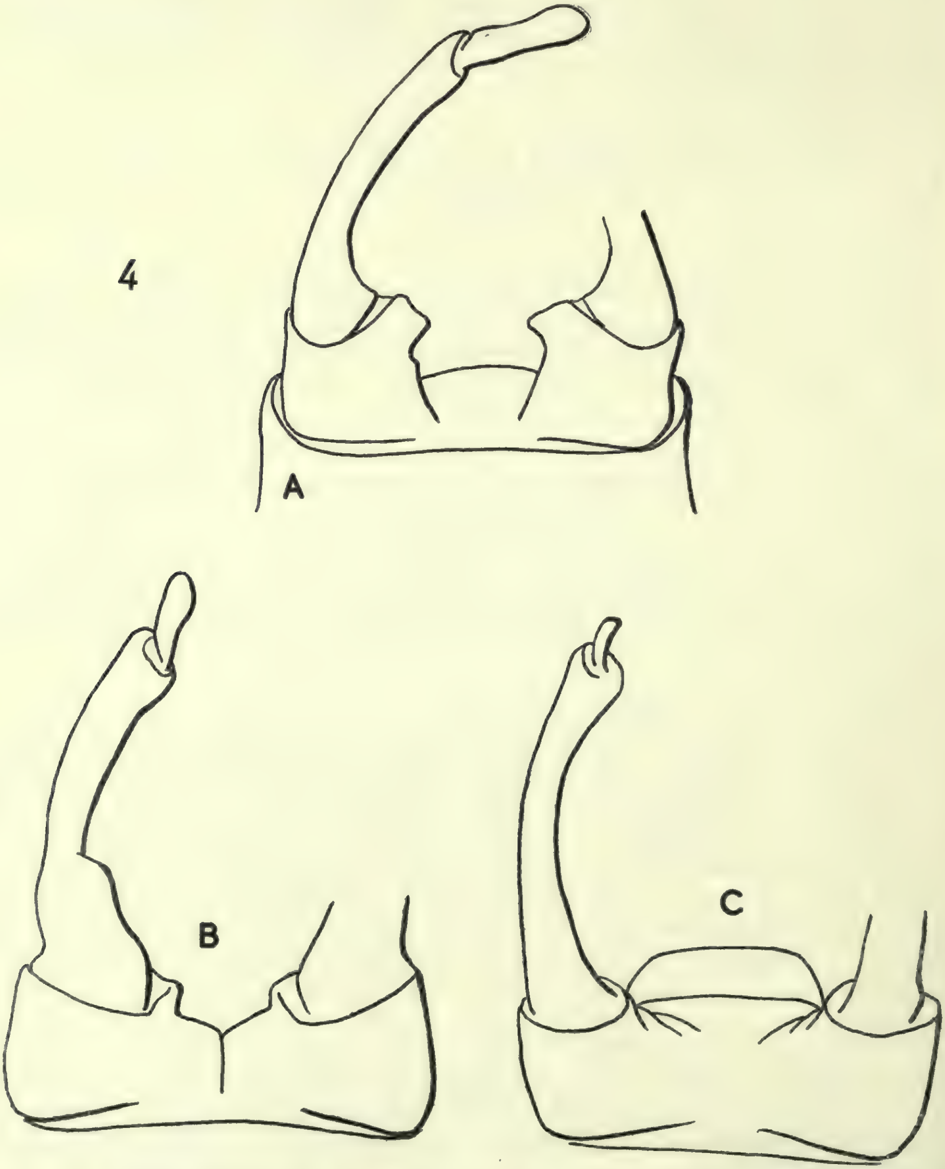


FIG. 4. ♂ Genitalia, ventral, of (A) *Centroptilum montanum* sp. n., (B) *C. loweae* Kimmins and (C) *C. falcatum* Crass, paratype.

dull orange, margin finely bordered with fuscous. Lower eyes blackish. Pronotum fuscous. Meso- and metathorax shining brown, with scattered whitish areas, more especially on the sides. Legs whitish, anterior femur pale fuscous. Wings hyaline, with whitish veins, base of fore wing pale fuscous. Fore wing with four to six complete costal cross-veins in pterostigma, no costal cross-veins before the bulla. Hind wing long and narrow, with two longitudinal veins, costal process slender and hooked.

Abdomen whitish, slightly fuscescent, segments two to six translucent, seven to ten opaque, slightly more fuscous. Segments one to seven each with a fine black lateral line on each side, about half the length of the segment. Some specimens show a varying amount of pinkish suffusion. Forceps greyish white. Cerci whitish. Terminal segment of forceps variable in length, often rather more elongate than in the type.

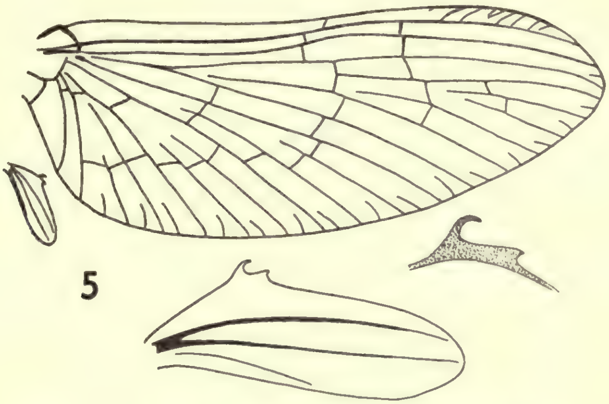


FIG. 5. ♂ Wings of *Centroptilum montanum* sp. n.

♂ Subimago (in alcohol). Head creamy white, with sometimes a pinkish flush above. Turbinate eyes pale orange, not quite as large as in adult. Pronotum creamy white, with a short, pinkish, transverse bar anteriorly and traces of other pinkish markings. Thorax creamy white with some fuscous markings on the sutures. Legs whitish, femora (particularly anterior) faintly fuscous. Wings whitish, with a small fuscous streak at base of radius. Abdomen with a creamy white ground, in unfaded specimens with a pinkish pigmented pattern as in Text-fig. 6. Cerci and forceps whitish.

♀ Subimago. Pattern generally less obvious than in ♂ subimago.

In general the Lake Victoria examples are rather smaller than those from L. Nyasa. The abdominal pattern, particularly in the subimagines, is rather fugitive and tends to bleach out in alcohol or formalin solutions. The ground colour, described as whitish or cream, may well be some other colour in life, but which has been completely dissolved or destroyed in alcohol. In the absence of colour notes made at the time of collecting, there is no way of telling. *C. sudafricanum* Lestage (det. Barnard) also has the fuscous margins to the turbinate eyes in the male, but may be distinguished by the bifid costal process to the hind wing and by the larger terminal segment of the forceps.

Distribution. Nyasaland, Tanganyika, Uganda.

Centroptilum falcatum Crass

Uganda: Kampala, Port Bell, 6–7.iv.1956; Entebbe, 31.xii.1955; Jinja, v, viii–ix.1954; W. Nile, near Laropi, 27–28.iv.1956 (*P. S. Corbet*); Kaazi, 16–17.ii.1954 (*R. Hartland-Rowe*).

Tanganyika: L. Victoria, Mwanza Pier, 11–13.viii.1956 (*P. S. Corbet*).

Kenya: L. Victoria, Kavirondo Gulf, Kisumu, 1956 (*P. S. Corbet*).

The rather elongate-oval turbinate eyes of the male, with longitudinal axes diverging forwards, appear to be a useful recognition character, as is the very small terminal segment of the forceps.

The preserved examples of what I believe to be *C. falcatum* Crass show considerable variation in the degree and type of abdominal pattern. In a paratype of this species there is now no trace of the pattern described by Crass and I have therefore been influenced in my interpretation by the structure of the male anal appendages and the shape of the turbinate eyes. The abdominal pattern of the male imagines and subimagines varies from almost unicolorous whitish, through a form with narrow, reddish, apical, transverse lines, to forms with a more or less evident reddish mark on the sixth tergite and finally to forms with a definite median dorsal line. The females show a somewhat similar variation. In my preliminary sorting of this material I provisionally separated them into three possible species, but subsequent study showed no constant differences in the male genitalia and intergrading in colour pattern, so that I do not feel justified in considering them as more than one species. I am giving diagrammatic figures of the abdominal patterns of several of the forms, in the hope that further study in the field may produce evidence to confirm or refute my interpretation.

Distribution. S. Africa, Uganda, Tanganyika, Kenya.

Centroptilum medium Crass

(Text-fig. 6)

Uganda: Jinja, xii.1954, 14, 24.v., 22.vii.1956; Entebbe, 1956; West Nile, Pakwach, 26, 29.iv.1956 (*P. S. Corbet*).

This species also has elongate-oval eyes, diverging anteriorly but may be distinguished from *falcatum* by the more elongate apical segment of the forceps and by the broader hind wing, with a blunter costal process. These specimens differ slightly in abdominal pattern from Crass' description but the differences are no more than might be expected in normal variation.

Distribution. S. Africa, Uganda.

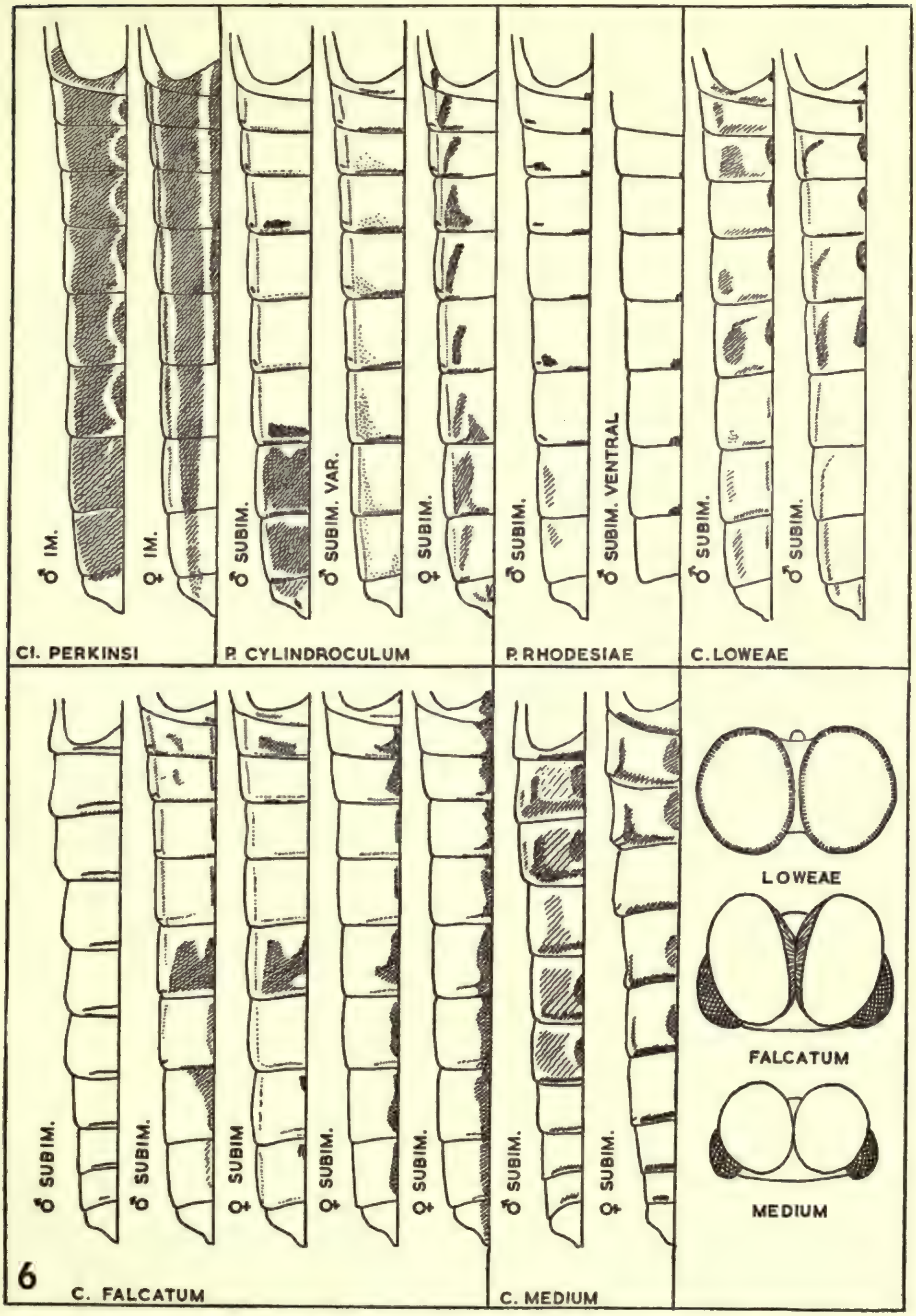

♂ IM.
♀ IM.
Cl. PERKINSI
♂ SUBIM.
♂ SUBIM. VAR.
♀ SUBIM.
P. CYLINDROCULUM
♂ SUBIM.
♂ SUBIM. VENTRAL
P. RHODESIAE
♂ SUBIM.
♂ SUBIM.
C. LOWEAE
♂ SUBIM.
♂ SUBIM.
♀ SUBIM
♀ SUBIM.
♀ SUBIM.
6
C. FALCATUM
♂ SUBIM.
♀ SUBIM.
C. MEDIUM
LOWEAE
FALCATUM
MEDIUM

Fig. 6. Diagrammatic drawings of abdominal colour pattern of *Cloëon*, *Procloëon* and *Centroptilum* spp. (dorsal unless otherwise stated) and eyes of *Centroptilum* spp. ♂ from above.

Centroptilum sudanense Ulmer

UGANDA: Jinja, v.1956; Victoria Nile, L. Kyanga, 1956; Entebbe, 1956 (*P. S. Corbet*).
DISTRIBUTION. Sudan, Uganda.

Centroptilum flavum Crass

UGANDA: Jinja, 15–24.vii., 19.ix.1956 (*P. S. Corbet*).
DISTRIBUTION. S. Africa, Uganda.

Centroptilum notabile Kimmins

UGANDA: Jinja, various dates, 1956 (*P. S. Corbet*).
TANGANYIKA: L. Victoria, Mwanza Pier, 11–13.viii.1956 (*P. S. Corbet*).
DISTRIBUTION. Uganda, Tanganyika.

Family LEPTOPHLEBIIDAE

Adenophlebia burgeoni Navás

(Text-fig. 7)

UGANDA: Mbanga Forest, near Mpigi, 1958, at M/V light (*P. S. Corbet*).

The type of this species is a ♂ subimago and I therefore take this opportunity of figuring the male genitalia from Corbet's examples. The forceps are rather more slender than in the *dislocans* group, and are more gradually tapered. The ventral hooks of the penis-lobes are less outwardly directed. In the hind wing the apical margin beyond the costal hump is straight, not concave as in the *dislocans* group.

Adenophlebiodes (A.) ornatus (Ulmer)

(Text-fig. 8)

Adenophlebia ornata Ulmer, 1916, *Arch. Natges.* **81 A** (7): 13, figs. 12–14.
Adenophlebiodes ornatus Ulmer, 1924, *Konowia*, **3**: 34.
?*Habrophlebia delamarei* Verrier, 1951, *Bull. Soc. ent. Fr.* **56**: 45–46, fig. 1, ♂ only. (**Syn. nov.**).

UGANDA: Mbanga Forest, near Mpigi, 1958, at M/V light (*P. S. Corbet*).

Corbet's specimens differ slightly from Ulmer's description and figure in the paler and less extensive abdominal markings, more resembling the figure of Verrier's *delamarei*. They differ from both Ulmer's and Verrier's descriptions in having the femora banded with purplish black about mid-way. I do not consider these differences to be of specific importance and it seems likely that Verrier's species is a synonym of *A. ornatus* (Ulmer). The female ascribed by Verrier to *delamarei* is said to have the basal half of the fore wing and the posterior wing almost uniformly tinted with brownish. I have seen similar examples from West Africa which I believe to be

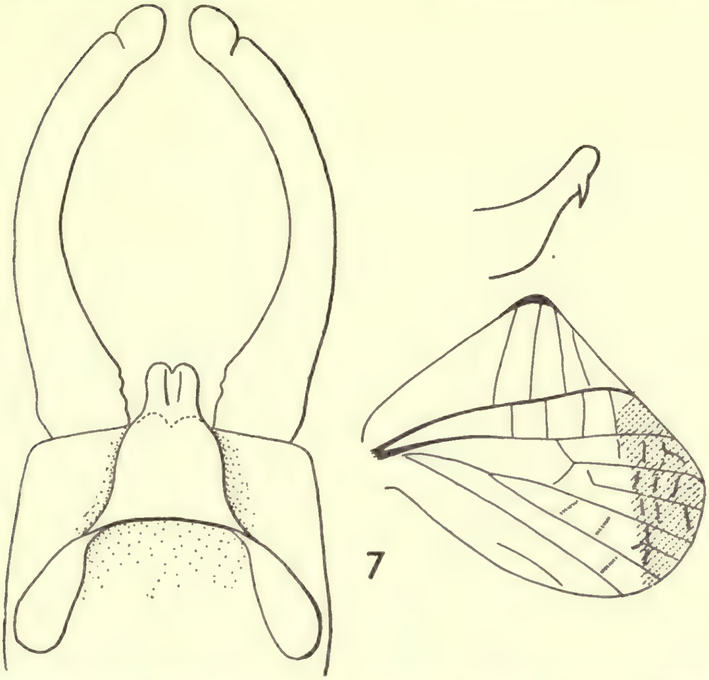
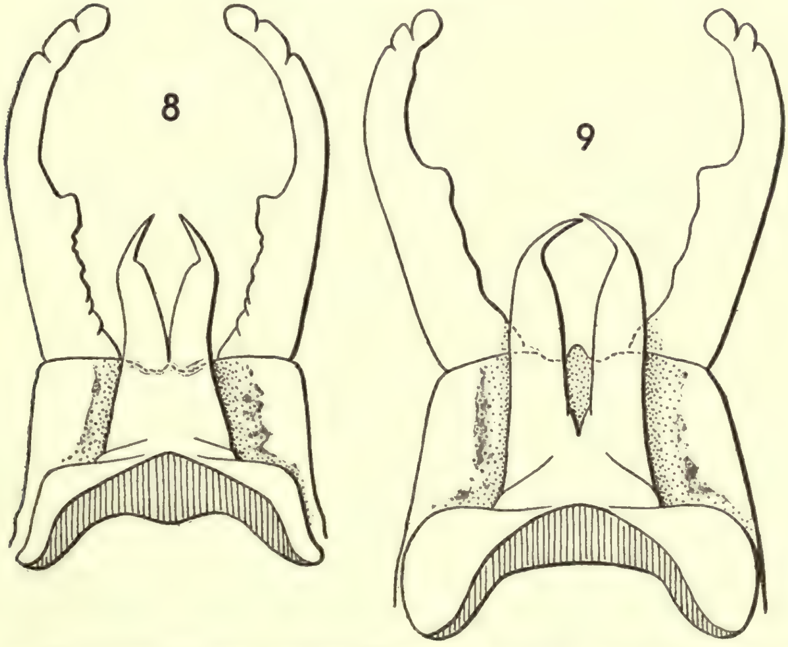


FIG. 7. *Adenophlebia burgeoni* (Navás). ♂ Genitalia, dorsal, apex of penis-lobes, lateral and ♂ hind wing.



FIGS. 8–9. (8) *Adenophlebiodes ornatus* (Ulmer), ♂ genitalia, dorsal; (9) *A. demoulini* nom. nov., ♂ genitalia, dorsal.

A. bicolor (Crass) and I suspect that Verrier's female will also prove to be that species. A new figure of the male genitalia is given.

DISTRIBUTION. Cameroon, Uganda, ? Ivory Coast.

Adenophlebiodes (Hyalophlebia) demoulini nom. nov.

(Text-fig. 9)

Adenophlebiodes decoratus Kimmins, 1956 (*nec* Navás, 1931), *Bull. Brit. Mus.* (*Nat. Hist.*), *Ent.* **4** : 77.

Dr. G. Demoulin drew my attention some time ago to his paper (1955, *Bull. Ann. Soc. R. Ent. Belg.* **91** : 281–290) in which he erects the subgenus *Hyalophlebia* for the hyaline-winged species of *Adenophlebiodes* and also transfers *Adenophlebia decorata* Navás, 1931 to the genus *Adenophlebiodes*. My species was therefore a homonym of *A. decoratus* (Navás) at its publication and I have pleasure in renaming it after Dr. Demoulin. A new figure of the male genitalia is given, for comparison with that of *A.* (*A.*) *ornatus* (Ulmer).

Hagenulus fasciatus Kimmins

UGANDA : Jinja, 1956 (*P. S. Corbet*) ; Jinja (*A. Tjönneland*).

TANGANYIKA : L. Victoria, Mwanza Pier, 11–13.viii.1956 (*P. S. Corbet*).

♀ Imago (in alcohol). Head dull fuscous, antennae whitish, eyes blackish. Pronotum medium fuscous, margins darker. Thorax warm brown. Legs whitish, knees fuscous, brown extending about half-way down tibiae. Abdomen pale purplish brown above, pale fuscous below. Seventh sternite fuscous in its apical third, with a whitish area in the centre of the margin, simulating an excision. Ninth sternite produced in a fuscous, parabolic ventral plate with a narrow, truncate apex. Cerci greyish, with darker basal annulations. Wings as in male.

Length of fore wing, 9 mm.

♀ Allotype (in 2% formaldehyde solution) in British Museum (Nat. Hist.), collected and presented by Dr. A. Tjönneland.

Euthraulus bugandensis Kimmins

UGANDA : Jinja, various dates, 1956 (*P. S. Corbet, A. Tjönneland*).

♂ Subimago. Eyes coloured as in imago. Prothorax purplish grey on a cream ground. Meso- and metathorax warm brown, with cream sutures. Wings pale grey. Legs whitish, femora each with purplish median and subapical bands, tibiae with a purplish spot on knees. Abdomen purplish grey above, bases of tergites and intersegmental membranes whitish. Ventrally creamy white. Cerci and appendages whitish.

Dr. Tjönneland informs me that the subimagines of *E. bugandensis* and *E. curtus* are easily separable in the field by the colour of the wings. In *E. bugandensis* they are " slate " grey and in *E. curtus* " very pale grey ".

Euthraulus curtus Kimmins

TANGANYIKA : L. Victoria, Mwanza Pier, 11–13.viii.1956 (*P. S. Corbet*).
DISTRIBUTION. Uganda, Tanganyika.

Family TRICORYTHIDAE

Tricorythus tinctus Kimmins

UGANDA : Owen Falls Dam, 27.i.1956 ; Kagera River, Kuwanda, 19.iv.1955 (*P. S. Corbet*).

KENYA : Nzoia River, Lwamba Ferry, 19–20.iv.1956 (*P. S. Corbet*).

DISTRIBUTION. Uganda, Kenya.

Tricorythus maculatus Kimmins

The ♂ type of this species was somewhat defective and rather faded and additional material from Nyasaland and Uganda makes it possible to fill in some of the gaps in the original description.

Fore leg with trochanter pale fuscous, femur whitish with fuscous apex, tibia whitish, fuscous at base and apex, tarsus whitish, faintly shaded with fuscous. Median leg whitish, femur with a dorsal, pre-apical, fuscous spot. In more strongly marked specimens, abdominal segments five to seven have a fine blackish lateral line, that on seven curving round on to apical margin, almost reaching the " pair of small apical spots ". The " small basal triangles " on eight and nine may extend as a pair of parallel blackish lines.

DISTRIBUTION. Nyasaland, Uganda.

Tricorythus longus Ulmer

UGANDA : Victoria Nile, L. Kyoga (*P. S. Corbet*).
DISTRIBUTION. Belgian Congo, Uganda.

Tricorythus lanceolatus sp. n.

(Text-fig. 10)

UGANDA : West Nile, near Laropi, 27–28.iv.1956, numerous ♂, ♀ (*P. S. Corbet*).

♂ Holotype (in alcohol). Head creamy white, eyes black, likewise the bases of the ocelli. Two faint greyish crescentic marks on vertex and a blackish streak from each eye on back of head. Antennae very pale greyish. Pronotum with anterior half pale grey with obscure cream markings, posterior half with two large creamy spots, separated by a narrow greyish median line, lateral margins broadly, and basal margin narrowly grey. Meso- and metanota creamy yellow, anterior angles of mesothorax greyish. Thoracic pleurae faintly greyish, venter yellowish. Legs pale creamy white, femora with narrow dorsal grey line. Wings hyaline, costal and sub-costal areas purplish grey in basal two-thirds, other veins whitish. Abdomen creamy white, each tergite with a greyish lateral streak and with traces of a pair of median longitudinal grey streaks. The latter become more distinct on the apical segments. Cerci whitish, with purplish black annulations. Sternites creamy, with traces of greyish lateral streaks.

♂ Genitalia creamy white. Forceps-base produced apically in a rounded lobe, the lobe being nearly as long as the main part of the forceps-base. Forceps two-segmented, basal segment short, cylindrical, rather more than twice as long as wide. Terminal segment rather more than one and a half times as long as basal, stout at its base, then tapering to a curved finger about half as wide as basal segment, apex curved inward. Inner surface rugose. Penis-lobes flattened dorso-ventrally, fused except for apical fourth, narrow in basal third, then dilated and broadly lanceolate, with a narrow apical excision.

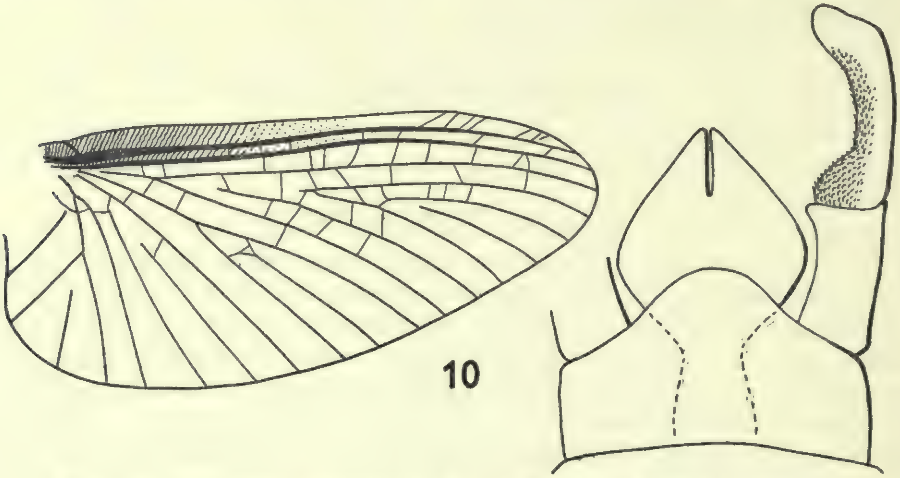


Fig. 10. *Tricorythus lanceolatus* sp. n. ♂ Wing and genitalia, ventral.

♀ Allotype (in alcohol). Head with more extensive markings than in male. Pronotum greyish, with two pale creamy spots in basal half, smaller than in male and separated by a greyish band rather broader than the pale spot. Meso- and metathorax yellowish, thickly dusted with greyish dots, venter pale, almost unmarked. Femora with longitudinal bands of dark grey. Wings hyaline, anterior margin purplish grey in basal two-thirds. Abdominal tergites heavily dusted with greyish, with a narrow cream median stripe, and with the lateral margins of tergites one to seven narrowly cream. Ventrally almost immaculate. Cerci short, whitish. Ventral plate parabolically produced.

Length of fore wing, ♂, 4–4·4 mm., ♀, 5–5·6 mm.

♂ Holotype and ♀ allotype now mounted whole as microscope slides in euparal, 1 paratype ♂ dissected and mounted as microscope preparations, remaining paratypes in 2% formaldehyde solution. This species is closely related to *T. latus* Ulmer, and I at first assumed that it was that species. Comparison of preparations with Demoulin's figure of the male genitalia of *T. latus* (from a preparation of a syntype) revealed certain differences in genitalia, which appear to be constant in the material under review. The most noticeable is the form of the terminal segment of the forceps, which is relatively shorter and stouter in *T. latus* and much more hooked inwards. The lobes of the penis are more distinctly rhomboidal in shape than in *T. latus*. Demoulin's figure does not show the stem of the penis-lobes, but he shows the lateral margins tapering much more gradually towards the base than in the present species. Ulmer gives as type localities for *T. latus*, Leopoldville and Kinchassa (on the R. Congo) and Bahr el Djebel, source of the Nile. Demoulin's figures are from Congo syntypes and I would suggest that one of the Congo specimens in the Institut royal des Sciences naturelles de Belgique be designated by Dr. Demoulin as lectotype of *T. latus* Ulmer. In view of the difference between *T. lanceolatus* from the West Nile and *T. latus* from the River Congo, it seems possible that the Bahr el Djebel specimens may not be conspecific with those from the Congo.

Family EUTHYPLOCIDAE

Exeuthyplocia minima (Ulmer)

UGANDA: Victoria Nile, Karuma Falls, 1959 (*P. S. Corbet*).
Previously recorded from Congo and Togoland.

Family EPHEMERIDAE

Afromera aequatorialis (Kimmins)

UGANDA: Entebbe, 1956; Masaka, Busungwe Bay, 21.iv.1956 (*P. S. Corbet*).

BRITISH MUSEUM 17 AUG 1960 NATURAL HISTORY

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AND

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F. G. A. M. SMIT

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Xrf.

Pp. 357–367 ; 9 *Text-figures*

Pp. 369–388 ; 19 *Text-figures*

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NOTES ON THE SHREW-FLEA *DORATOPSYLLA DASYCNEMA* (ROTHSCHILD)

By F. G. A. M. SMIT

ONE of the common fleas specific to shrews in Europe and western U.S.S.R. is *Doratopsylla dasycnema* (Rothschild), which is easily identifiable on the structure of the head (Text-fig. 1). This flea occurs on three of the four genera of shrews found in Europe, having been collected from *Sorex*, *Neomys* and *Crocidura* but not yet recorded from *Suncus*, and seems to show a preference for individuals living in a wooded habitat ; from the records it would seem that the species is commonest on *Sorex araneus*, but it must not be forgotten that members of this species are far more often examined for fleas than are any of the other European shrews.

Doratopsylla cuspis Rothschild, which is likewise a parasite of shrews, has a more or less Mediterranean distribution, partially fringing that of *D. dasycnema*, and is now regarded as a subspecies of the latter. Yurkina (1952) described *Doratopsylla bifida* (from the Ukraine) which I consider to be a synonym of *D. d. cuspis*, while Rosický (1957) described the subspecies *D. d. tiflovi* (from material from eastern Czechoslovakia), which I regard as a synonym of *D. d. dasycnema* ; my reasons for these beliefs are discussed below. Rosický, in his paper of 1957, also suggests that specimens of *D. d. cuspis* from Zermatt, Switzerland, may represent yet another subspecies of *D. dasycnema* and remarks " Die definitive Identifizierung der Zermatter Populationen überlasse ich den Kollegen in Tring, die über ein umfangreiches Material dieser wahrscheinlich neuen Subspezies verfügen."

After careful examination of our material of both subspecies I have come to the conclusion that on this material and on published data no more than two subspecies can be recognized ; they can be differentiated as follows :

- ♂ : Movable process of clasper fairly broad, when completely flattened only about thrice as long as wide (Text-figs. 3, 4) ; ♀ : sinus in the posterior margin of sternum VII well developed (Text-fig. 7) . . . . . . *D. dasycnema dasycnema*
- ♂ : Movable process of clasper relatively narrow, when completely flattened out about five times as long as wide (Text-figs. 5, 6) ; ♀ : sinus in the posterior margin of sternum VII absent, poorly developed or small (Text-fig. 8) . *D. dasycnema cuspis*

Doratopsylla dasycnema dasycnema (Rothschild, 1897)

(Text-figs. 1–4, 7, 9)

Tryphlopsylla [error for *Typhlopsylla*] *dasycnemus* Rothschild, 1897, *Ent. Rec.* **9** : 159, pl. 4.
Typhlopsylla dasycnemus Roths. Rothschild, 1898, *Novit. zool.* **5** : 540, pl. XVA, figs. 4, 5.
Palaeopsylla dasycnemus Roths. Wagner, 1903, *Hor. Soc. ent. ross.* **36** : 140, 142, pl. 2, fig. 3.
Ctenophthalmus dasycnemus (Roths.). Baker, 1904, *Proc. U.S. nat. Mus.* **27** : 449.

Palaeopsylla dasycnemus (Roths.). Dampf, 1910, *Zool. Jb.*, Suppl. **12** : 632, figs. o, p.

Doratopsylla dasycnemus Roths. Jordan & Rothschild, 1912, *Novit. zool.* **19** : 62.

Doratopsylla fennica Nordberg, 1935, *Memor. Soc. Fauna Flora fenn.* **10** : 359, 368, figs. 14, 15.

Doratopsylla dasycnema Roths. Rosický, 1950, *Vestn. Csl. zool. spol.* **14** : 138–145.

Doratopsylla dasycnemus dasycnemus (Roths.). Smit, 1953, *Ent. Medd.* **26** : 534.

Doratopsylla fennica Nordberg. Smit, 1956, *Opusc. Ent.* **21** : 132 (placed as a synonym of *D. d. dasycnema*).

Doratopsylla dasycnema tiflovi. Rosický, 1957, *Acta faun. ent. Mus. nat. Prag.* **2** : 25, fig. 1. **Syn. nov.**

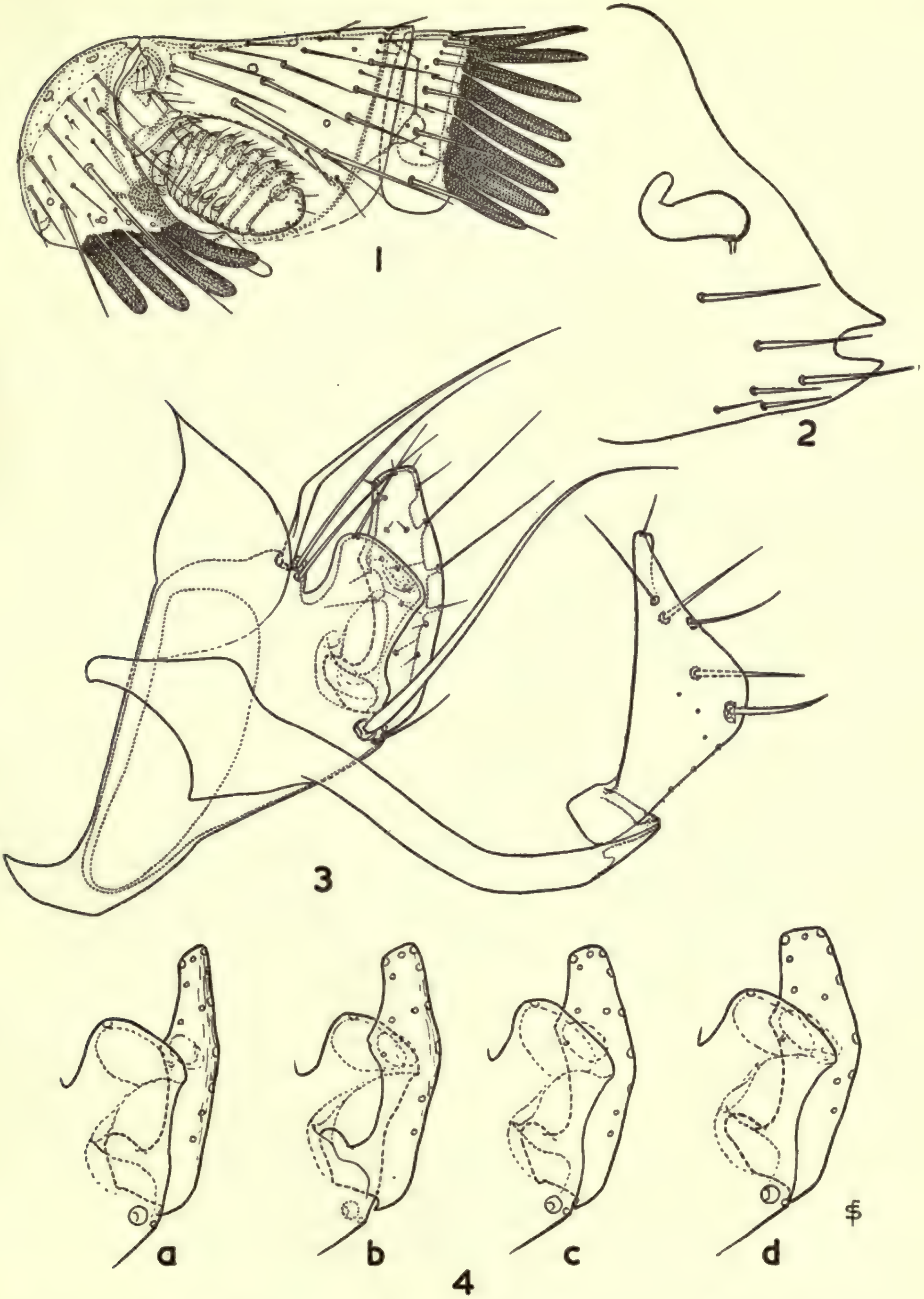
The movable process of the clasper of *D. dasycnema* shows considerable apparent variation in the relative width; this has also been noted for the Far-Eastern *D. coreana* by Darskaya (1949, *C.R. Acad. Sci. U.R.S.S.* **68** : 429). Rosický based his diagnosis of *D. dasycnema tiflovi* mainly on the fact that the movable process is narrower than in the nominate subspecies, but broader than in *D. d. cuspis*, and that the tip of this process is regularly truncate.

Although there is actually some individual variation in the width of the movable process of the clasper in species of *Doratopsylla*, my experiments have shown that the apparent great variation, which has caused the description of new forms, is merely due to accidents of mounting. If the clasper is not completely flattened in the preparation, the movable process lies longitudinally in an oblique plane, and therefore appears narrower (and with a more strongly oblique apex) than when flattened; this is quite often the case in the species concerned. The holotype of *D. d. dasycnema* provides an excellent example of the effect of flattening on the apparent width of the process: the left-hand process (Text-fig. 4*a*) is not lying in a flat plane and appears to be very narrow, whereas the right-hand one (Text-fig. 4*b*) is more flattened and therefore apparently broader; the unflattened process is even narrower than that of *D. d. tiflovi*. The processes of the clasper of two topotypical paratypes are shown in Text-fig. 4*c*, *d*. Rosický also mentions a difference in width of the aedeagal apodeme and of the distal arm of sternum IX; the variation in the width of these structures is genuine but is merely individual and is of the same degree in both subspecies.

The vast distribution of the nominate subspecies is shown in Text-fig. 9; in the U.S.S.R. *D. d. dasycnema* goes as far east as the Irtysh river (about 70° E.), while it is replaced by *D. dampfi* Argyropulo in the Caucasus and by *D. coreana* Darskaya in the Far East.

The distribution shown on the map is based on the following records:

British Isles: Rothschild, 1897, *Ent. Rec.* **9** : 159, pl. 4; Rothschild, 1898, *Novit. zool.* **5** : 540, pl. XVa, figs. 4, 5; Waterston, 1906, *Ann. Scot. nat. Hist.* (**60**) : 214; Bagnall, 1913, *Ent. Rec.* **25** : 225; Waterston, 1914, *Ent. mon. Mag.* **50** : 164; Rothschild, 1915, *Ent. mon. Mag.* **51** : 80, 103, figs. 66, 67; Scott, 1915, *Scot. Nat.* (**44**) : 254; Bagnall, 1919, *Trans. nat. Hist. Soc. Newcastle,* **5** : 196; Britten, 1920, *Lancs. Chesh. Nat.* **13** : 104; Jeffery, 1923, *Proc. Is. Wight nat. Hist. Soc.* **1** : 124; Hamm, 1926, *in*: Walker, *Nat. Hist. Oxford Distr.* : 279; Slater, 1927, *Proc. Somersetsh. archaeol. nat. Hist. Soc.* **70** : LXVIII; Hallett, 1930, *Trans. Cardiff Nat. Soc.* (1928) : 73; Turk, 1946, *Ent. mon. Mag.* **82** : 98; Dunnet, 1950, *Scot. Nat.* **62** : 43; George, 1954, *Ent. Gaz.* **5** : 89; George, 1956, *Entomologist,* **89** : 201, 202; Smit,



FIGS. 1–4. *Doratopsylla dasycnema dasycnema* (Rothschild). 1. Head and pronotum, ♂ (Terschelling, Netherlands); 2. Sternum VII and spermatheca (Wilp, Netherlands); 3. Clasper and sternum IX (Hilton, Aberdeenshire, Scotland); 4. Processes of clasper: *a*, left-hand side of holotype; *b*, right-hand side of holotype; *c*, *d*, paratypes (Tring).

1957, *Ent. Gaz.* **8** : 50 ; Smit, 1957, *Handbks Identif. Brit. Ins.* **1** (16) : 35, figs. 66–68 ; George, 1958, *Ent. Gaz.* **9** : 29.

Hitherto unpublished records (material in Tring collection) from :

Bucksburn and Scotstown (Aberdeenshire), Argyllshire, Kinloch Rannoch (Perthshire), Isle of Mull, Elterwater (Westmorland), Reynoldston (Glamorgan), Rilla Mill and St. Ives (Cornwall), Braunton, Lynton, Hartland Quay and Sidmouth (Devonshire), Bath, Porlock and Porlock Weir (Somerset), Shrivenham (Berkshire), Berkhamsted (Hertfordshire), Shepperton (Middlesex), Abinger and Leith Hill (Surrey), Goring-on-Sea (Sussex) and Higham (Suffolk).

SWEDEN : Wahlgren, 1907, *Ent. Tidskr.* **28** : 88.

DENMARK : Smit, 1953, *Ent. Medd.* **26** : 534 ; Smit, 1954, *Danm. Fauna,* **60** : 53, figs. 57–59.

GERMANY : Rothschild, 1898, *Novit. zool.* **5** : 540 ; Rothschild, 1915, *Ectoparasites,* **1** : 29.

NETHERLANDS : Smit, 1947, *Ent. Ber.* **12** : 200 ; Smit, 1954, *Ent. Ber.* **15** : 198. Hitherto unpublished records (material in Tring collection) from : Nijmegen, Renkum and Wageningen (all in Gelderland province).

FRANCE : Rothschild, 1915, *Ectoparasites,* **1** : 29 ; Jordan, 1931, *Novit. zool.* **36** : 227.

SWITZERLAND : Rothschild, 1915, *Ectoparasites,* **1** : 29 ; Jordan & Rothschild, 1920, *Ectoparasites,* **1** : 110. Hitherto unpublished records (material in Tring collection) from Isenfluh (Bern) and Bern.

AUSTRIA : Smit, 1955, *Cat. Faun. Austr.* XIXz : 3. Hitherto unpublished record (material in Tring collection) from Rogatsboden (Lower Austria).

YUGOSLAVIA : Wagner, 1930, *Acta Soc. ent. jugoslav.* **3–4** : 23 ; Rosický & Carnelutti, 1959, *Csl. Parasitol.* **6** : 142.

BULGARIA : Jordan, 1932, *Mitt. Natur. Inst. Sofia,* **5** : 147 ; Rosický, 1959, *Acta Acad. sci. czechoslov. brun.* **31** : 335.

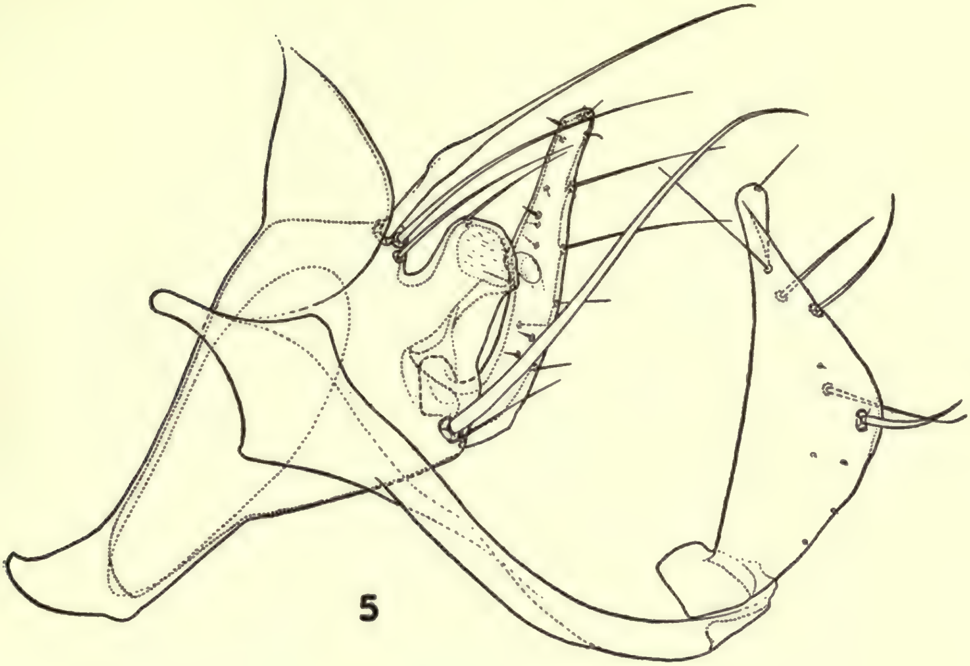
CZECHOSLOVAKIA : Rothschild, 1915, *Ectoparasites,* **1** : 29 ; Jordan, 1932, *Novit. zool.* **38** : 263 ; Rosický, 1944, *Sborn. ent. Odd. Zem. Mus. Praze,* **21–22** : 47 ; Rosický, 1950, *Vestn. Csl. zool. spol.* **14** : 138–145 ; Rosický, 1952, *Acta ent. Mus. nat. Prag.* **28** : 7, 8 ; Rosický, 1955, *Zool. ent. Listy,* **4** : 367 ; Jurik, 1957, *Acta rerum nat. Dist. Ostrav,* **18** : 120 ; Rosický, 1957, *Acta faun. ent. Mus. nat. Prag.* **2** : 25, fig. 1 [as *D. dasycnema tiflovi*], 26–28, fig. 3 (part) ; Rosický, 1957, *Fauna CSR* **10** : 250, 251, figs. 84A, B, D, 95*a* (2) ; Rosický, 1957, *Csl. Parasitol.* **4** : 285 ; Radvan, 1959, *Acta Mus. Reginaehrad.* (A) **2** : 196 ; Rosický, 1959, *Acta Mus. nat. Prag.* (B) **15** : 150. I have not been able to trace and map several of the localities mentioned in Rosický's papers.

POLAND : Dampf, 1910, *Schr. phys.-ökon. Ges. Königsb.* **51** : 44 ; Skuratowicz, 1954, *Acta Parasitol. polon.* **2** : 79, 80 ; Lachmajer & Wegner, 1956, *Wiadom. Parazytol.* **2** : 103 ; Lachmajer & Skierska, 1956, l.c. **2** : 107.

ESTONIAN S.S.R. : Jacobson, 1940, *Zool. Anz.* **129** : 112.

FINLAND : Nordberg, 1935, *Memor. Soc. Fauna Flora fenn.* **10** : 359, 368, figs. 14, 15 [as *D. fennica*] ; Smit, 1956, *Opusc. Ent.* **21** : 132.

U.S.S.R. : Darskaya, 1953, *Vopr. Parazitol. med. Zool.* **8** : 166–174 ; Vysotskaya & Sazonova, 1953, *Parazit. Sborn.* **15** : 394 ; Ioff, 1956, *Ektoparazity,* **3** : 135, 145.



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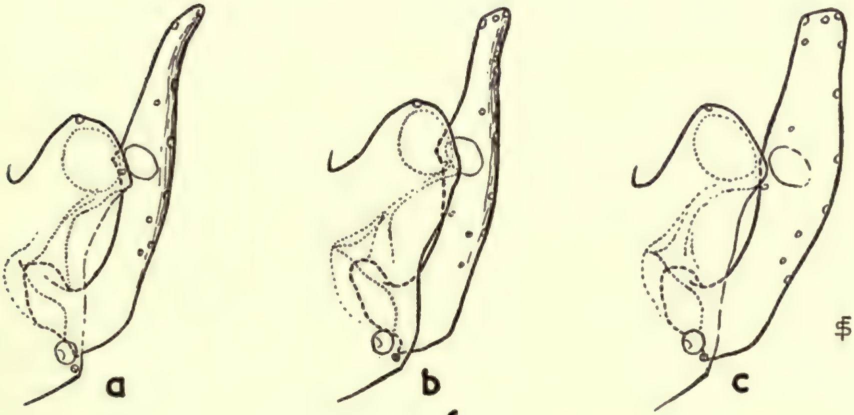

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FIGS. 5, 6. *Doratopsylla dasycnema cuspis* Rothschild. 5. Clasper and sternum IX (holotype) ; 6*a–c*. Processes of clasper of three topotypical paratypes.

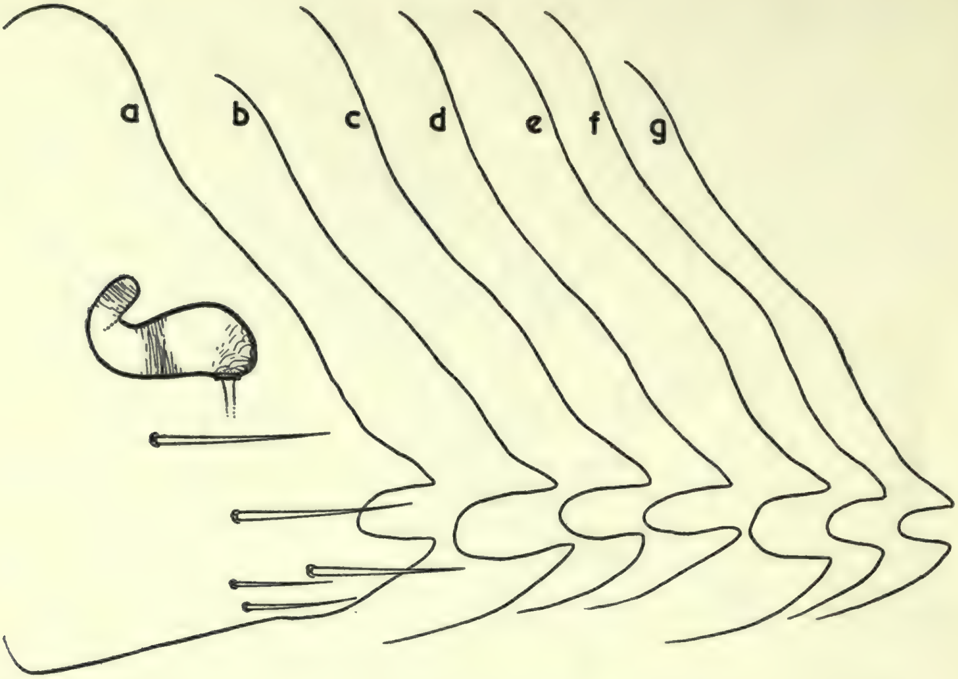

FIG. 7. *Doratopsylla dasycnema dasycnema* (Rothschild). *a*, Sternum VII and spermatheca, Wilp (Gelderland, Netherlands) ; *b–g*, outlines of sternum VII : *b*, Braunton (Devon, England) ; *c*, Tring (Herts., England) ; *d*, Abinger (Surrey, England) ; *e*, Isenfluh (Bern, Switzerland) ; *f*, *g*, Göschenen (Uri, Switzerland).

Doratopsylla dasycnema cuspis Rothschild, 1915

(Text-figs. 5, 6, 8, 9)

Doratopsylla cuspis Rothschild, 1915, *Ectoparasites*, **1** : 28, figs. 30, 31.

Doratopsylla bifida Yurkina, 1952, *Trud. Inst. Zool. Akad. Nauk U.R.S.R.* **8** : 84, figs. 3, 4. **Syn. nov.**

Doratopsylla dasycnema cuspis Roths. Rosický, 1957, *Acta faun. ent. Mus. nat. Prag.* **2** : 27, 28, fig. 3 (part).

Doratopsylla dasycnema bifida Yurkina. Rosický, 1957, *Acta faun. ent. Mus. nat. Prag.* **2** : 26–28, fig. 2.

The description of *D. d. bifida* Yurkina is mainly based on the fact that the described specimens have a long and narrow movable process of the clasper with an oblique apex, while subapically the process appears somewhat constricted.

As discussed under the nominate subspecies, the apparent difference in shape of the movable process between *D. d. bifida* and *D. d. cuspis* is mainly due to the degree

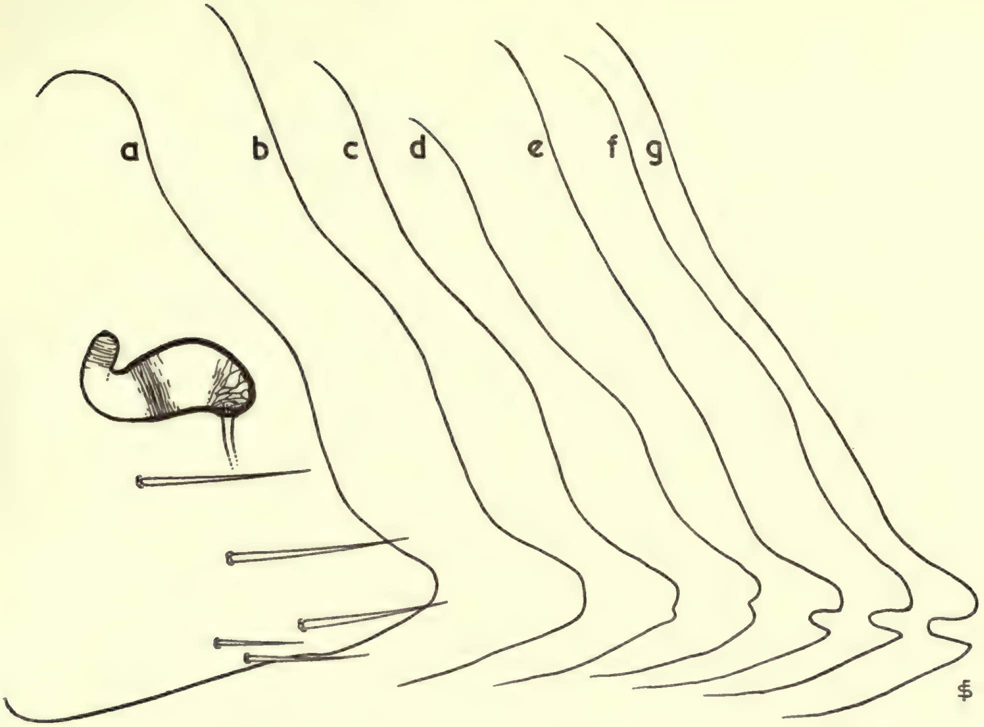

Fig. 8. *Doratopsylla dasycnema cuspis* Rothschild. *a*, Sternum VII and spermatheca, Piora Valley (Ticino, Switzerland) ; *b–g*, outlines of sternum VII : *b*, Zermatt (Valais, Switzerland) ; *c* (allotype), *d* (paratype), Biharfüred (Roumania) ; *e*, Zermatt ; *f*, Biharfüred (paratype) ; *g*, Zermatt.

of flattening of the process, though also to some extent to normal variation. The four specimens of the type series of *D. d. cuspis* from Biharfüred, Roumania, exhibit the so-called variation in an excellent way, see Text-figs. 5 and 6. Sternum VII of the female of *D. d. bifida* as shown in Yurkina's fig. 4 is practically the same as that of the Swiss specimen of *D. d. cuspis* shown in Text-fig. 8*g* of the present paper.

Rosický (1957 : 28) records *D. d. bifida* from the Vihorlat Mts. in eastern Czechoslovakia and states that he compared specimens from there with material from the Ukrainian Carpathians and found them identical, but in 1958 (legend to fig. 2) Rosický adds " (?) " to *D. d. bifida* from the Vihorlat.

On zoogeographical grounds it is most unlikely that specimens from the Polish and Ukrainian Carpathians on the one hand, and those from the Vihorlat on the other, are subspecifically different and I do not hesitate to place *D. d. bifida* as a synonym of *D. d. cuspis*.

The distribution, based on references given below, is shown in Text-fig. 9.

Switzerland : Rothschild, 1915, *Ectoparasites*, **1** : 28, figs. 30, 31 ; Jordan &

Rothschild, 1920, l.c. **1** : 110 ; Jordan & Rothschild, 1923, l.c. **1** : 288. Hitherto unpublished records (material in Tring collection) from : Münster (Valais), Oberdorf (Valais), Oberwald (Valais), Piora Valley (Ticino), Locarno (Ticino) and Roseg Valley (Upper Engadine, Grisons).

ITALY : Jordan, 1928, *Novit. zool.* **34** : 177 ; Jordan, 1931, l.c. **36** : 231. Hitherto unpublished record (material in Tring collection) from below Rolle Pass (Dolomites).

YUGOSLAVIA : Wagner, 1936, *Bull. Soc. Sci. Skoplje,* **17** : 135 ; Wagner, 1939, l.c. **20** : 156. Hitherto unpublished record (material in Tring collection) from Bohinjska Bistrica (Slovenija).

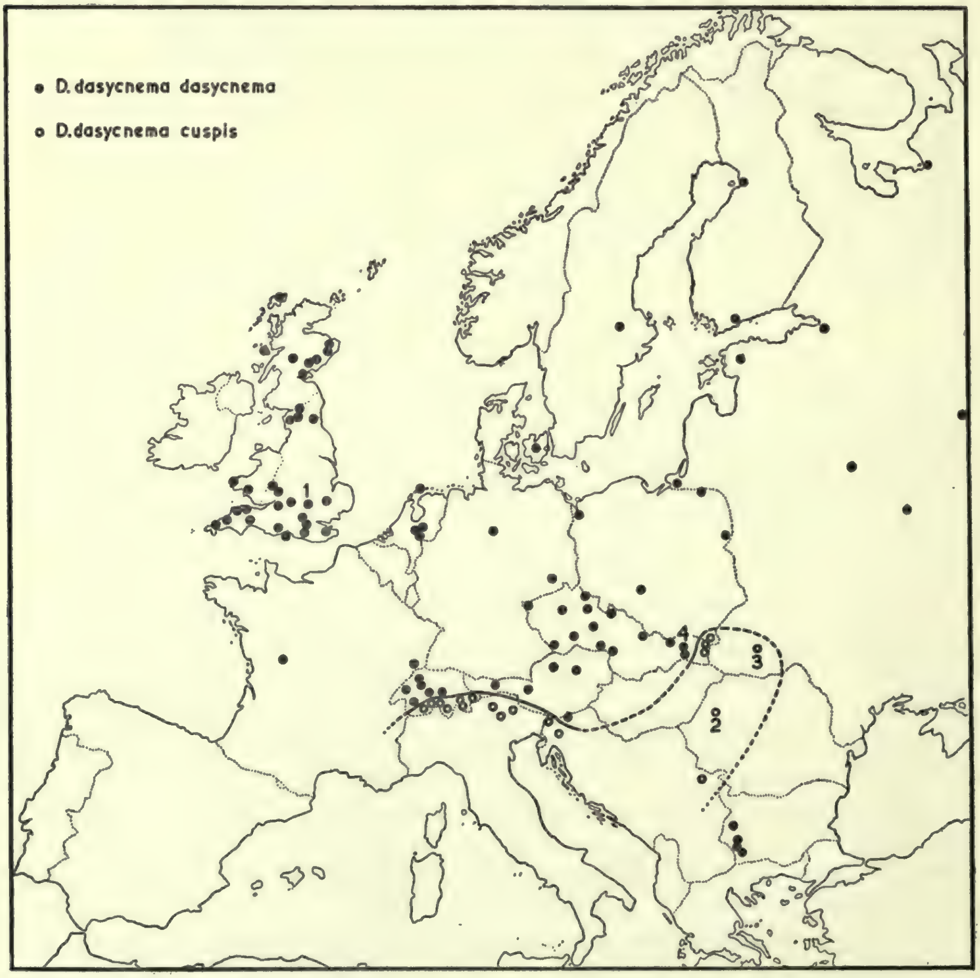

FIG. 9. Map showing the distribution of *Doratopsylla dasycnema dasycnema* (Rothschild) and *D. d. cuspis* Rothschild. 1 = Type locality of *D. d. dasycnema* ; 2 = type locality of *D. d. cuspis* ; 3 = type locality of *D. d. bifida* ; 4 = type locality of *D. d. tiflovi*.

CZECHOSLOVAKIA : Rosický, 1952, *Acta ent. Mus. nat. Prag.* **28** : 8 ; Rosický, 1957, *Acta faun. ent. Mus. nat. Prag.* **2** : 26–28, fig. 2 [as *D. dasycnema bifida*] ; Rosický, 1957, *Fauna CSR* **10** : 251, fig. 95*a* (1) [as *D. d. bifida*] ; Rosický, 1958, *Csl. Parasitol.* **5** : 147, fig. 2 [as *D. d. bifida* (?)].

ROUMANIA : Jordan & Rothschild, 1912, *Novit. zool.* **19** : 62 [as *D. dasycnemus* ; see Rothschild, 1915, *Ectoparasites,* **1** : 28].

POLAND : Skuratowicz, 1957, *Acta Parasitol. polon.* **5** : 554.

UKRAINIAN S.S.R. : Yurkina, 1952, *Trud. Inst. Zool. Akad. Nauk U.R.S.R.* **8** : 84, figs. 3, 4 [as *D. bifida*].

NOTES ON *PALAEOPSYLLA*, A GENUS OF SIPHONAPTERA

By F. G. A. M. SMIT

In this paper (*a*) the genus *Palaeopsylla* Wagner, 1903, is divided into phylogenetic species-groups; (*b*) a description is given of a new species closely related to *Palaeopsylla remota*; and (*c*) the European subspecies (one of which is described as new) of *Palaeopsylla soricis* are dealt with.

THE SPECIES-GROUPS OF *PALAEOPSYLLA*

The 25 known species and subspecies of *Palaeopsylla* are associated with insectivore hosts (Talpidae and Soricidae) and occur throughout the Palaearctic Region with the exception of four species which are found in the Oriental Region (mountains of Burma, Malaya and Java respectively).

Palaeopsylla klebsiana Dampf, 1910, one of the two known fossil fleas (described from a single female in Baltic amber), does not fit into any of the three groups described below and constitutes a group of its own which appears to have affinities to the *remota*-group rather than to the two other groups. It is not possible to draw up a definition of the *klebsiana*-group on the same lines as those of the other groups, since the type-specimen (which, as Professor Peus informs me, is no longer in Kaliningrad and must be considered lost) did not permit a particularly detailed description. The original description of *Palaeopsylla klebsiana* might be taken as the definition of the *klebsiana*-group.

SORICIS-GROUP

Internal frontal marginal sclerotization below the frontal tubercle very narrow. Longest (third) spine of genal ctenidium abruptly narrowed beyond middle and tapering to a long and very narrow apex; second spine usually more or less spatulate, with only a short tapered apical portion. Pronotal ctenidium consisting of 16–18 spines of which at least the more dorsal ones are gently curved in such a way that their upper margins are slightly concave; correlated with this curvature is the tendency for the tips of the spines to be rounded off. Surface sculpture of abdominal segments reticulate, the posterior margins of these segments serrate. An average of 6 or 7 subdorsal spinelets each side on the posterior margins of the first 5 terga together.

Male. Sternum VIII broadly rounded, with a minutely serrate posterior margin. Fixed process of clasper without a striarium. Acetabulum of clasper adjacent to base of manubrium. Distal arm of sternum IX of subequal width throughout, none of its apical setae subspiniform.

Female. Ventral half of tergum VIII with a lateral oblique row of (normally) three strong setae ; one strong lateral seta between this row and the posterior margin. Posterior margin of tergum VIII with a sinus ; the upper short and stout seta at the sinus is marginal, the lower stout, but longer, seta placed a short distance away from the margin. Apex of sternum VIII relatively broad, with minute apical setae.

HOSTS. Soricidae.

DISTRIBUTION. Palaearctic Region.

Here belong : *soricis* sspp., *sinica* Ioff and *vartanovi* Ioff.

MINOR-GROUP

Internal frontal marginal sclerotization below the frontal tubercle of medium width throughout, dark and compact. Longest (third) spine of genal ctenidium slender and gradually tapering to a long and narrow apex ; second spine broadest a little beyond middle and thence tapering to a sharp apex. Pronotal ctenidium consisting of 18 straight and sharply pointed spines. Surface sculpture of abdominal segments non-reticulate, the posterior margins of these segments smooth. An average of 5 or 6 (8 in male of *atlantica*) subdorsal spinelets each side at the posterior margins of the first 5 or 6 terga together.

MALE. Sternum VIII ventrally emarginate except in *alpestris*,[1] or with a small ventro-posterior sinus (in *atlantica* and *iberica*) ; the posterior margin finely serrate (in *minor*, *alpestris*, *similis*, *kohauti*, *cisalpina* and *steini* ; the serration slight in *caucasica*) or smooth (in *atlantica* and *iberica*). Fixed process of clasper with a striarium in *minor*, *alpestris*, *caucasica*, *atlantica* and *iberica*. Acetabulum of clasper distant from the base of the manubrium. Distal arm of sternum IX at least a little broader apically than basally (not tapering towards the apex), with—except in *caucasica* and *alpestris*—one or more short subspiniform setae below the longest apical seta.

FEMALE. Ventral half of tergum VIII with a lateral oblique row of (normally) three strong setae ; one strong lateral seta between this row and the posterior margin (absent in the only available female of *P. caucasica*). Posterior margin of tergum VIII with a sinus, the margin meets the ventral margin at a sharp angle ; the upper short and stout seta at the sinus is marginal, the lower stout, but longer, seta placed only a little away from the margin (except in *atlantica* in which the lower seta is situated well away from the margin) ; there may be a third stout seta, of intermediate length, between the two setae mentioned. Apical half of sternum VIII rod-like, except in *atlantica* and *iberica* in which the apex is less sclerotized and the apico-dorsal free margin very short ; apex of sternum VIII with minute setae.

HOSTS. Talpidae.

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[1] *P. alpestris* was described as a subspecies of *P. minor* and has since been referred to as *P. minor alpestris* Argyropulo. *P. alpestris* differs from *P. minor* as follows : (*a*) the internal frontal sclerotization below the frontal tubercle is narrower ; (*b*) sternum VIII of male ventrally not emarginate ; (*c*) the corpus of clasper is shorter ; (*d*) the proximal arm of sternum IX is much narrower and the distal arm is dorso-apically widened, while the long seta and the short subspiniform below it are more widely spaced and thinner than in *P. minor* ; (*e*) the movable process has a more oblique apical margin and the upper angle of the acetabular part projects much less ; (*f*) in the female the dorsal lobe of the posterior margin of sternum VII is much more strongly developed while below the sinus the margin forms a distinct short lobe. These differences, taken together, are of a specific rather than of a subspecific nature ; however, there is no doubt about the close relationship between the two species.

DISTRIBUTION. European and Mediterranean subregions of the Palaearctic Region. The species which belong here can be placed into the following subgroups: (*a*) *minor* (Dale), *alpestris* Argyropulo, *similis* sspp. and *caucasica* Argyropulo; (*b*) *kohauti* Dampf, *cisalpina* Jordan & Rothschild and *steini* Jordan; (*c*) *atlantica* Jordan & Rothschild and *iberica* Jordan & Rothschild. *Palaeopsylla osetica* Ioff, not seen, probably belongs to this group.

REMOTA-GROUP

Internal frontal marginal sclerotization below the frontal tubercle relatively broad and rather irregularly shaped, not strongly sclerotized and much broken up by haemocoeles (some specimens of *remota* and *miranda* do not quite agree with this description and are more like specimens of the *minor*-group in this respect). Longest (third) spine of genal ctenidium in varying degrees abruptly tapering to a very narrow apex. Spines of pronotal ctenidium either straight and sharp (in *remota*, *nippon* and *mogura*) or curved and tending to be blunt-ended (in *miyama*, *incurva* and *laxata*), the ctenidium consisting of 16, 18 or 20 spines. Surface sculpture of abdominal segments non-reticulate, the posterior margins of these segments smooth. An average of 8 (6 in *remota* and *miranda*, 12–14 in *miyama*) subdorsal spinelets each side at the posterior margins of the first 5 or 6 terga together.

MALE (this sex is not known of *incurva* and *laxata*). Posterior margin of sternum VIII rounded and smooth. Fixed process of clasper with a striarium. Acetabulum of clasper practically adjacent to base of manubrium. Distal arm of sternum IX narrow and very gradually tapering towards the apex which bears several shortish setae, none of which is subspiniform.

FEMALE. Ventral half of tergum VIII with a lateral vertical row of (normally) three strong setae; no lateral seta between this row and the posterior margin. Posterior margin of tergum VIII with a lateral hump along which about half a dozen short setae which are not particularly stout (none of the genital setae is placed on the inner lateral surface of tergum VIII); the margin below the hump smoothly convex, not angulate. Apical half of sternum VIII free, with several longish apical setae.

HOSTS. Soricidae and Talpidae.

DISTRIBUTION. Eastern Palaearctic Region, Oriental Region.

Here belong: *remota* Jordan, *miranda* Smit, *nippon* Jameson & Kumada, *miyama* Sakaguti & Jameson, *incurva* Jordan, *laxata* Jordan and *mogura* Jameson & Sakaguti.

Palaeopsylla miranda sp. n.

(Text-figs. 2, 4, 6, 8, 9)

TYPE MATERIAL. Male holotype, female allotype and three male and three female paratypes from Mt. Victoria, 2,800 m., Pakokku Chin Hills, Burma, from *Talpa micrura leucura*[1], 4.v.1938, G. Heinrich.

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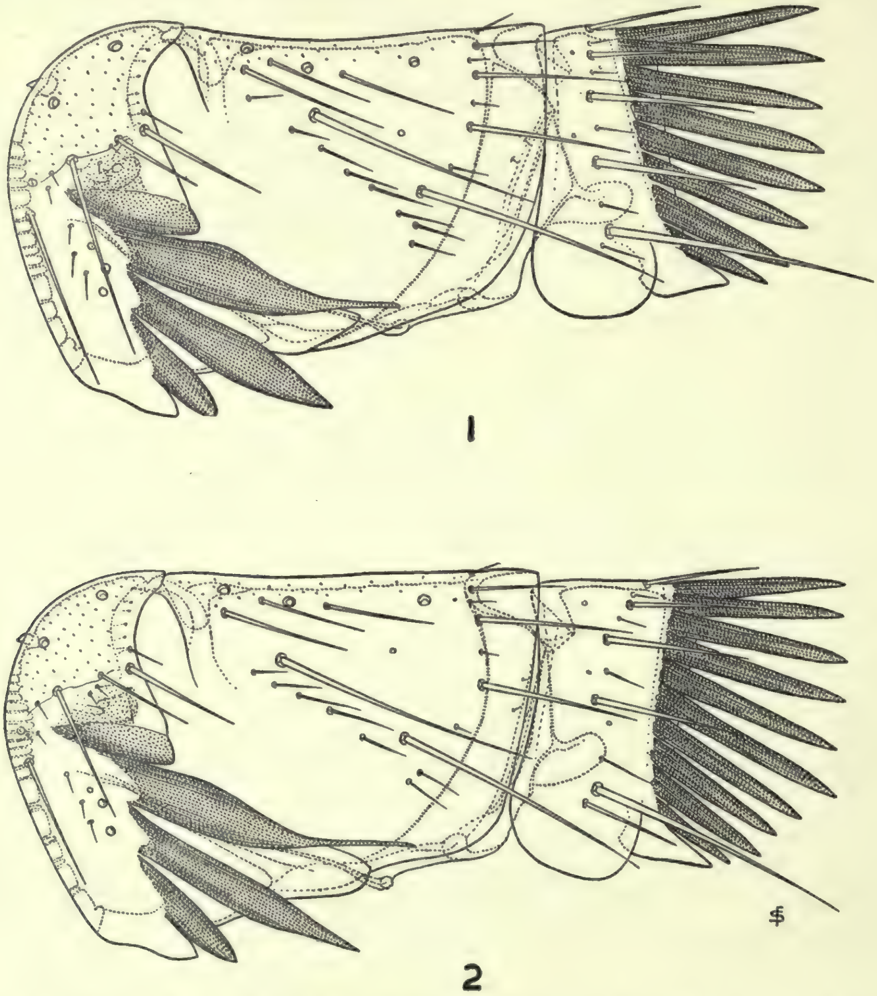
[1] On the original label the host was given as "Talpa (Balg 753)" but Prof. Dr. F. Peus has most kindly ascertained for us that Heinrich's skin No. 753 is that of *Talpa micrura leucura* Blyth.

DIAGNOSIS. This new species is extremely closely related to *Palaeopsylla remota* Jordan, 1929 (a parasite of *Anurosorex* in South-East Asia) and differs from the latter by (*a*) the first three genal spines being longer and slenderer, (*b*) more numerous pronotal spines, namely 20 instead of 16, (*c*) a somewhat irregularly shaped movable process with a rounded apex, as against a straight movable process with a truncate apex, (*d*) some differences in the structures of the aedeagus, and (*e*) in the female by a differently shaped lower lateral lobe of the posterior margin of sternum VII.



FIGS. 1, 2. Head and pronotum of : 1. *Palaeopsylla remota* Jordan, ♂ (from Mt. Victoria, Burma) ; 2. *Palaeopsylla miranda* sp. n., ♂ (holotype).

DESCRIPTION. The two anterior long setae of the frontal row are considerably shorter than those in *P. remota* (Text-fig. 2, cf. Text-fig. 1). First (lowest) genal spine with a pointed apex (a rounded apex in *P. remota*) ; second genal spine slender, not much widened just before it narrows gradually to a sharply pointed apex ; the third genal spine likewise not much widened, its apical part drawn out into a long and thin tip—both the second and third spines are longer than those of *P. remota*. Pronotum (Text-fig. 2, cf. Text-fig. 1) dorsally much longer than in *P. remota* and while the latter has a pronotal ctenidium consisting of 16 spines, the pronotum of the new species bears 20 spines (in one of the males even 22) which are also a little more sharply pointed. Mesothorax, metathorax and legs virtually as in *P. remota*. Unmodified abdominal segments similar to those in *P. remota*, but the spiracular fossae are on the whole somewhat smaller in *P. miranda*.

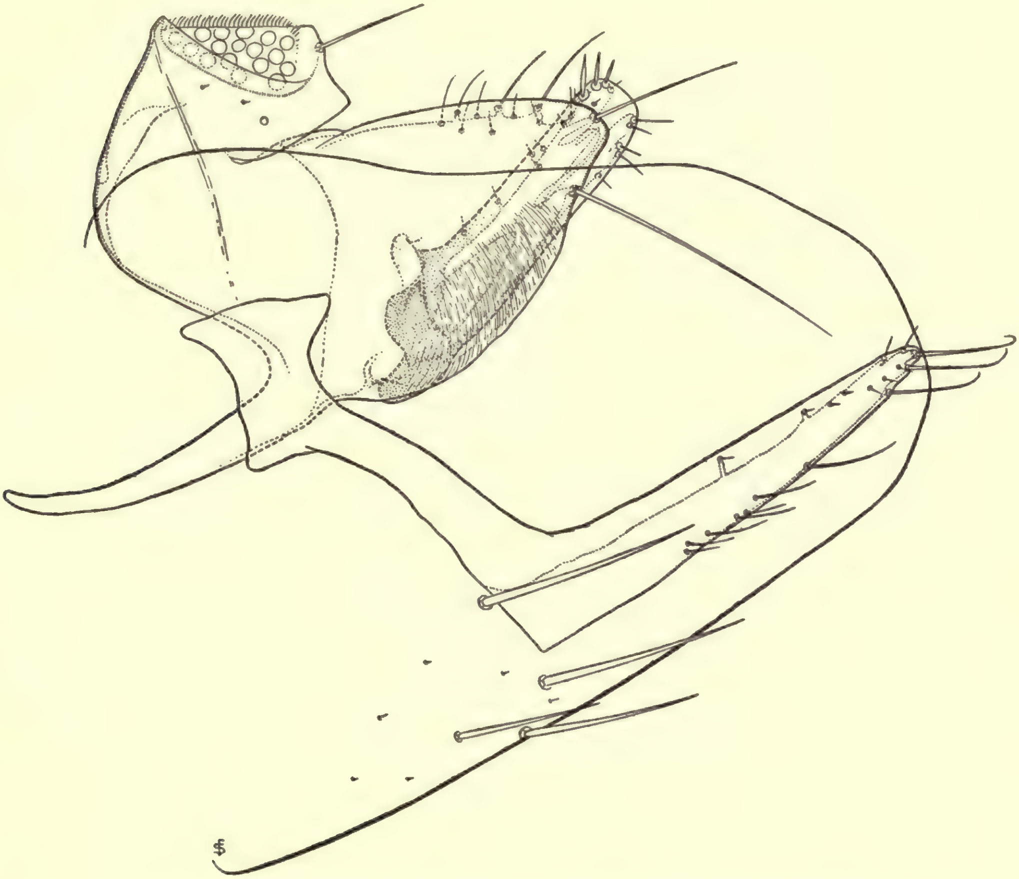


Fig. 3. *Palaeopsylla remota* Jordan. Sternum VIII and segment IX, ♂ (from Mt. Victoria, Burma).

MALE (Text-figs. 4, 6). Lower stretch of posterior margin of sternum VIII forming an angle with the ventral margin ; in *P. remota* the corresponding stretch forms a straight continuation of the ventral margin. Corpus of clasper and manubrium similar in the two species. Movable process (Text-fig. 4) with a somewhat undulate anterior margin and a slightly convex posterior margin (this process shows a tendency to become curved) ; tip of movable process rounded. In *P. remota* (Text-fig. 3) the movable process is straight, of the same width throughout most of its length and the apex is markedly truncate. Sternum IX does not show any constant differences between the two species. For differences in the apical sclerites of the aedeagus contrast Text-fig. 5 and Text-fig. 6 ; note that (*a*) the apico-ventral extension of

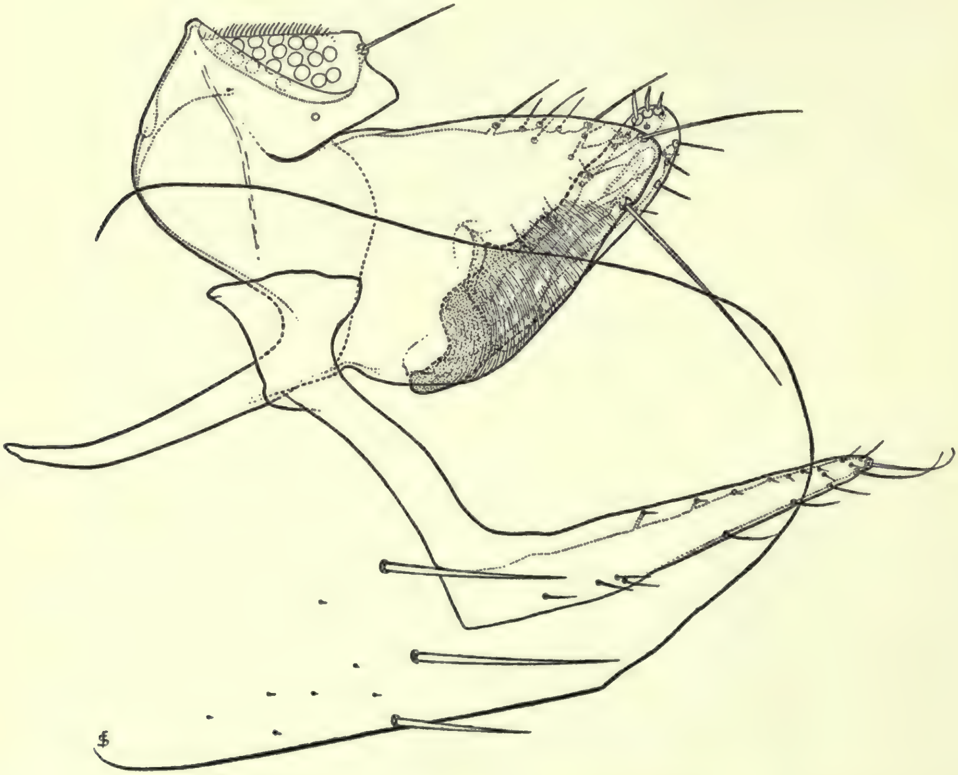
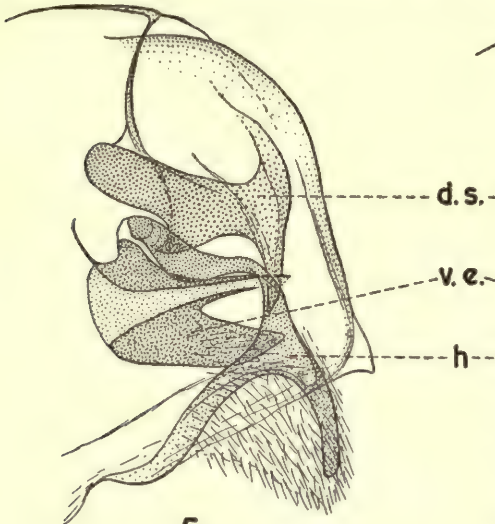


FIG. 4. *Palaeopsylla miranda* sp. n. Sternum VIII and segment IX, ♂ (holotype).



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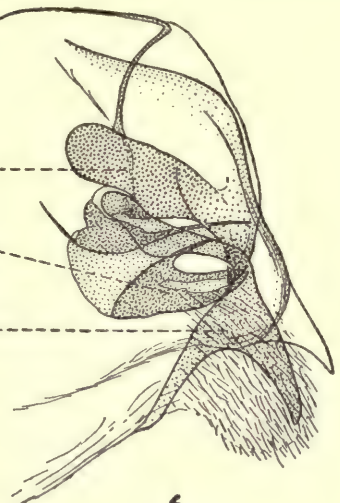

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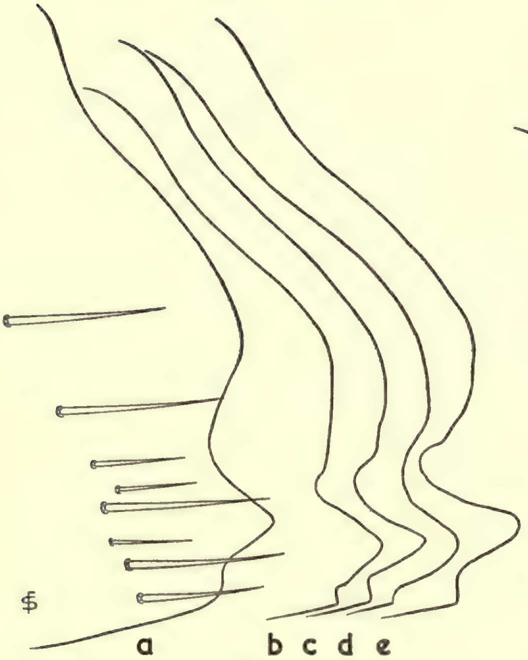

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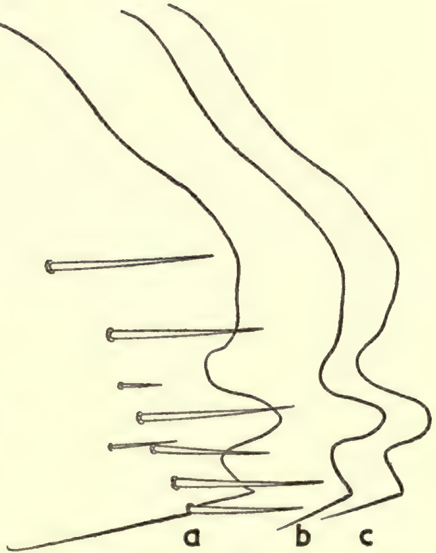

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FIGS. 5–8. Apex of aedeagus of : 5. *Palaeopsylla remota* Jordan (from Mt. Victoria, Burma) ; 6. *Palaeopsylla miranda* sp. n. (holotype). Figs. 7, 8. Outlines of sternum VII of females of : 7. *Palaeopsylla remota* Jordan (*a*, holotype ; *b* and *c*, Lingtam, Sikkim, India ; *d* and *e*, Mt. Victoria, Burma) ; 8. *Palaeopsylla miranda* sp. n. (*a–c*, paratypes).

the dorso-apical sclerite (d.s.) is longer in *P. remota*, (*b*) the large ventral extension (v.e.) of the inner tube has a less sclerotized area in *P. miranda*, and (*c*) the prongs of the Y-shaped hamulus (h) are considerably longer in *P. remota* than in *P. miranda*.

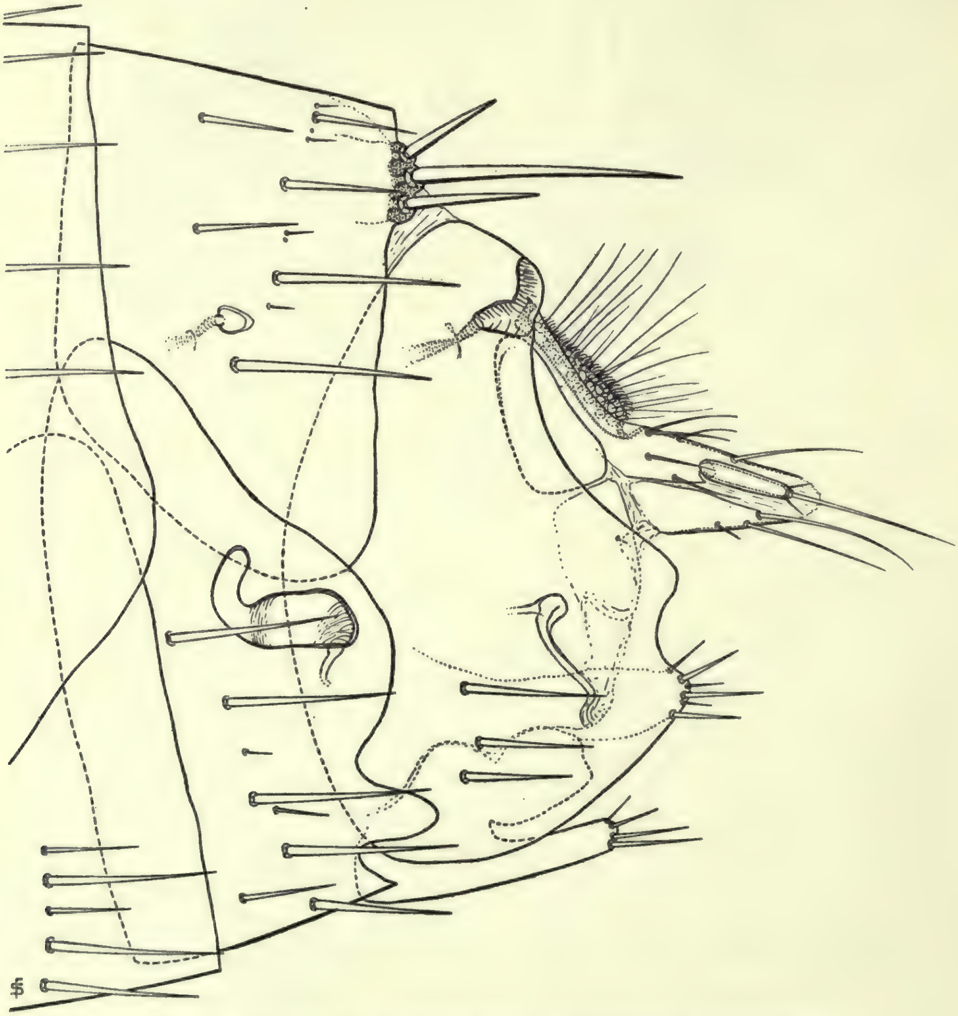


FIG. 9. *Palaeopsylla miranda* sp. n. Terminalia of allotype.

FEMALE (Text-figs. 8, 9). The lower lateral lobe of the posterior margin of sternum VII is basally narrower and less distinctly triangular than in *P. remota* (Text-figs. 8, 9, cf. Text-fig. 7); the margin below this lobe is longer than in *P. remota* and may form a sharp angle with the ventral margin, which it apparently never does in *P. remota*. The ventral margin of tergum VIII below the apical group of setae tends to be more strongly convex in *P. remota* than in *P. miranda.* Otherwise the female terminal abdominal segments and genitalia do not differ.

LENGTH. ♂ 2–2¼ mm. ; ♀, 2½ mm.

REMARKS. Li (1957, *Acta zool. sinica* **9** : 28, 33) states that in Western Yunnan a species of *Palaeopsylla* was found on *Parascaptor leucura* [= *Talpa micrura leucura*] which is not *P. remota* as described by Jordan from Szechwan. Since *P. remota* appears to occur throughout most of the range of its host, *Anurosorex* (the flea is known from Sikkim, Burma, Szechwan and Formosa), there is a strong probability that the *Palaeopsylla* found in Western Yunnan on *Talpa micrura leucura* is identical with *P. miranda.*

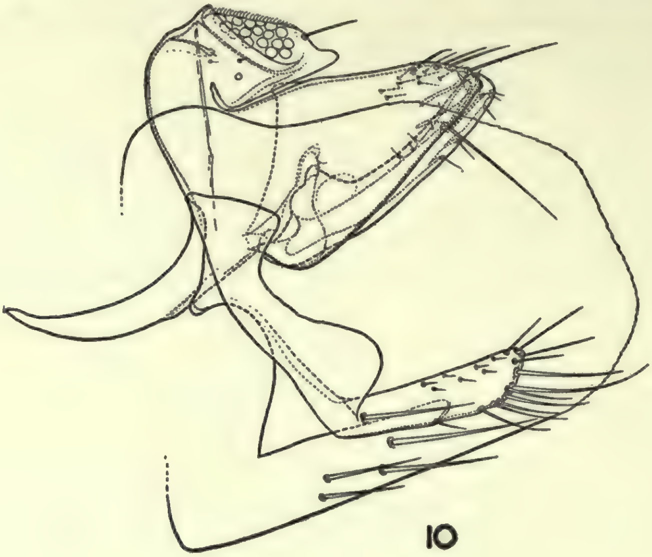
THE EUROPEAN SUBSPECIES OF *PALAEOPSYLLA SORICIS*

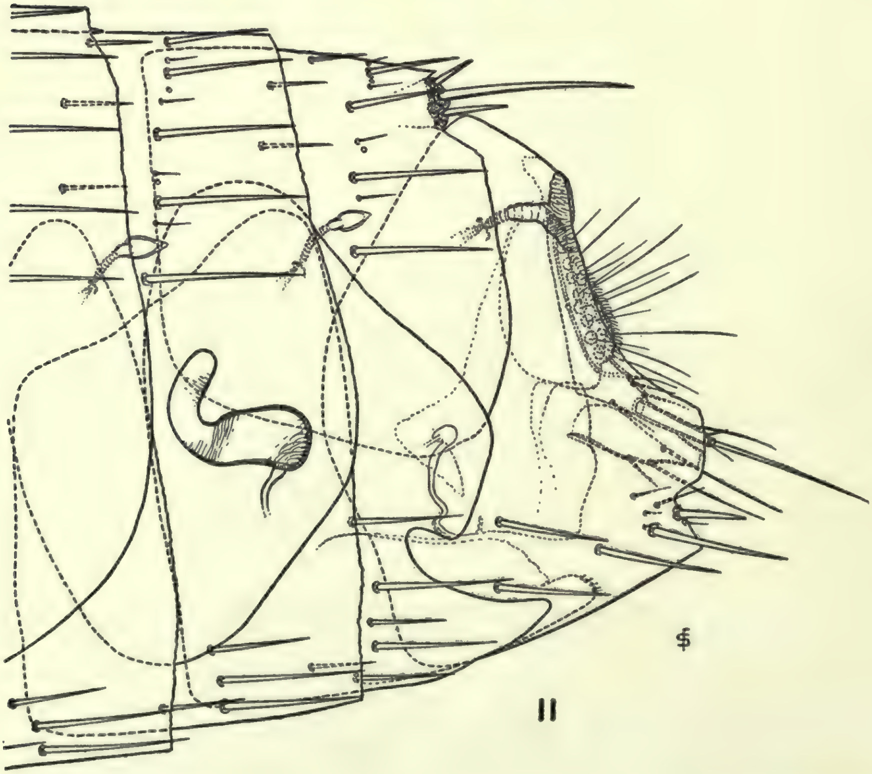
Palaeopsylla soricis (Dale) is a common flea of shrews in Europe (not yet recorded from the Iberian peninsula where it may perhaps be absent or possibly be present only at high altitudes) and Asia (east to Tyan-Shan, Altai Mts. and western Transbaikalia). In Europe it appears to be commonest on *Sorex araneus*, but it should be noted that members of this species are far more often examined for fleas than are any of the other European shrews (*Neomys*, *Crocidura* and *Suncus*). Darskaya (1953, *Vopr. Parazitol. med. Zool.* **8** : 166–174) found that in the Mikheno district of the Moscow oblast the numerosity of *P. soricis* on *Neomys fodiens* is almost nine times as great as on *Sorex araneus* and she surmises that some of the causes of greater infestation of water-shrews by fleas may be the relationship of the latter with a specific micro-habitat, a more settled way of life of the water-shrew and, possibly, the presence of permanent burrows.

Dampf (1926, *Ent. Mitt.* **15** : 385) remarked that " Die östliche Form [von *Palaeopsylla soricis*] scheint eine eigene Lokalrasse zu bilden " ; his material was from East Prussia and was doubtless the same subspecies as that which Wagner in 1930 described as *Palaeopsylla soricis starki* from material from the Bryansk oblast in Byelorussia. The characters on which Wagner differentiated this subspecies proved to be unsatisfactory and Smit (1957, *Handbks Identif. Brit. Ins.* **1** (16) : 37), though not having seen any male specimens from the U.S.S.R., suggested that *P. soricis starki* might be a synonym of the nominate subspecies.

Argyropulo (1946, *Med. Parasitol., Moscow,* **15** : 91) described another subspecies, *Palaeopsylla soricis gromovi*, from material from North-West Caucasus ; this is quite distinct in the male sex.

When studying the aedeagus of European specimens of *Palaeopsylla soricis* from the Tring collection I noticed that this material actually consists of three subspecies : the nominate western subspecies, the eastern subspecies *P. s. starki* and an undescribed central European subspecies. All three subspecies are dealt with below ; since the females of the known subspecies of *Palaeopsylla soricis* are indistinguishable from each other, they are not discussed here, but a figure has been included of the terminal abdominal segments and genitalia of the neallotype of *Palaeopsylla soricis soricis* (Dale) (Text-fig. 11).





FIGS. 10, 11. *Palaeopsylla soricis soricis* (Dale). 10. Sternum VIII and segment IX (neotype, from Bath, Somerset, England); 11. Terminalia of female (neallotype, from Bath).

Palaeopsylla soricis soricis (Dale, 1878)

(Text-figs. 10–12, 15, 19)

Ceratophyllus sorecis[1] Dale, 1878, *History Glanville's Wootton*, 291 (Glanville's Wootton, Dorset, England, from shrews).

Typhlopsylla "gracilis Taschbg.". Rothschild, 1898 (*nec* Taschenberg, 1880), *Novit. zool.* **5** : 541, pl. 17, fig. 16.

Ctenopsyllus sorecis (Dale). Baker, 1905, *Proc. U. S. nat. Mus.* **29** : 156.

Palaeopsylla sorecis (Dale). Dampf, 1910, *Schr. phys.-ökon. Ges. Königsb.* **51** : 329.

Palaeopsylla soricis (Dale). Smit, 1952, *Ent. mon. Mag.* **88** : 133.

Palaeopsylla soricis soricis (Dale). Smit, 1954, *Danm. Fauna*, **60** : figs. 60, 62, 63 (drawn from specimens from The Netherlands) ; Smit, 1957, *Handbks Identif. Brit. Ins.* **1** (16) : 36, figs 71–73 ; Smit, 1960, *Ent. Gaz.* [in press] (designation of neotype).

All references to specimens from the British Isles, Netherlands, Belgium, France, Switzerland and Italian Dolomites (San Martino di Castrozza, Völs [now Fiè] and Rolle Pass) refer to this subspecies.

MALE. Distinguishable from *P. s. starki* by the more strongly oblique apical margin of the distal arm of sternum IX (contrast Text-fig. 12 with Text-fig. 14) ; differing

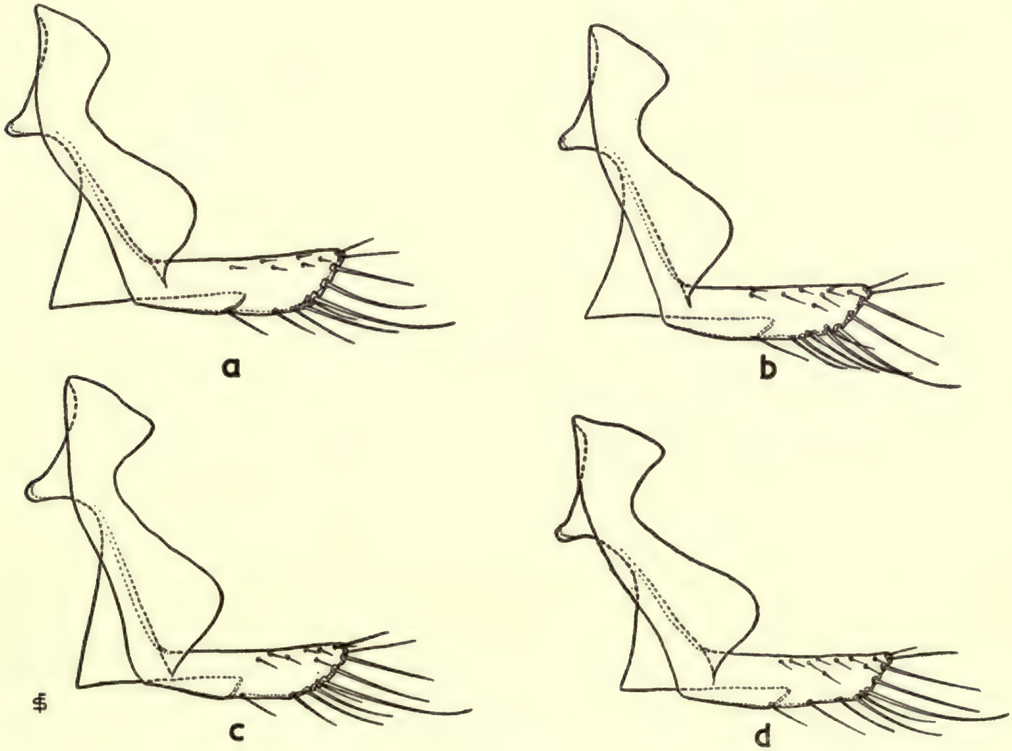


FIG. 12. *Palaeopsylla soricis soricis* (Dale). Sternum IX of four males (*a*, Bath, England ; *b*, Wilp, Netherlands ; *c*, Sarstedt, Germany ; *d*, Göschenen, Switzerland).

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[1] A misprint for *soricis* ; see Smit, 1952 : 133.

from *P. s. starki* and *P. s. rosickyi* by details of the apical sclerites of the aedeagus (contrast Text-fig. 15 with Text-figs. 16 and 17). Text-figs. 10 and 15 respectively show the modified abdominal segments and the phallosome of the neotype from Bath, Somerset, England.

The distribution, shown in Text-fig. 19, is based on male specimens examined by me from the following localities:

British Isles: Orkney Isles; Achmore near Assynt (Sutherland), Berry Hill, Cults, Craigiebuckler, Murcher Links, Hilton, Seaton, banks of River Don, Cairney, Parkhill, Cornhill, Rosehill, Scotstown (all in Aberdeenshire); Tullus Hill and Nigg (Kincardineshire); Abernyte, Kinloch Rannoch, Loch Tay, and Tyndrum (Perthshire); Sunart (Argyllshire); Glen Cova and Dundee (Angus); Luffness, Aberlady (East Lothian); Mull; Watermillock on Ullswater (Cumberland); Spurn (Yorkshire); Aberystwyth (Cardiganshire); Penard, Gower Peninsula, Port Eynon district, Gower Peninsula (Glamorgan); Gloucester (Gloucestershire); Oundle and Ashton near Oundle (Northamptonshire); Osea Island (Essex); Tring, Berkhamsted and Boxmoor (Hertfordshire); Shoreham (Kent); Abinger Common

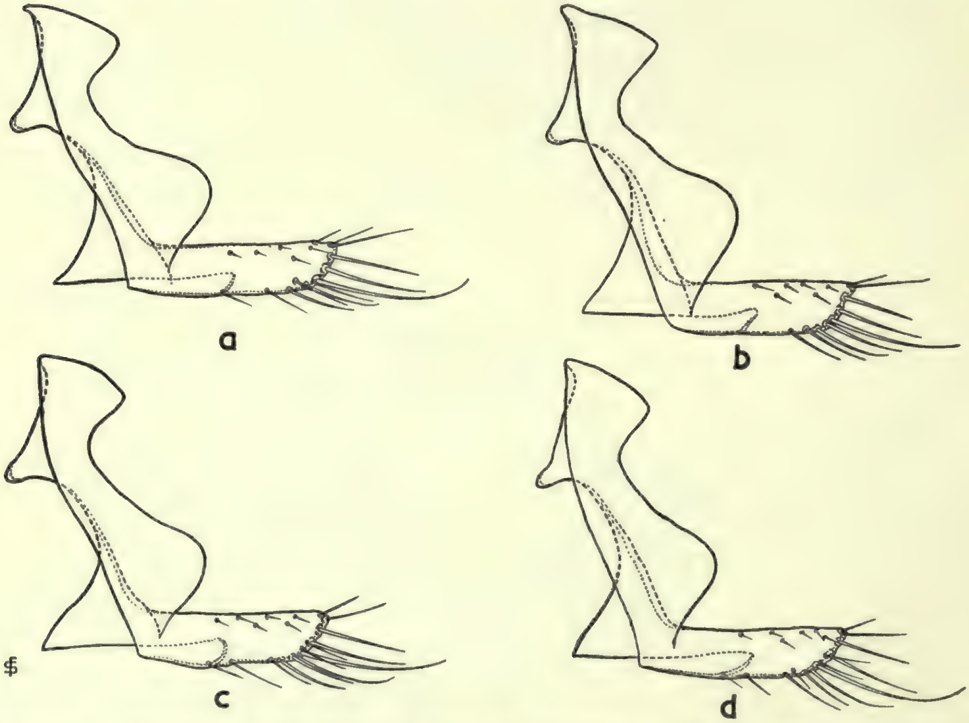

Fig. 13. *Palaeopsylla soricis rosickyi* subsp. n. Sternum IX of four males (*a*, Karlova Studânka, Czechoslovakia; *b*, Hofeberg, Glatzer Schneeberg, Poland; *c* and *d*, Magdeburg, Germany).

(Surrey) ; Bagley Wood, Calcot near Reading, and Shrivenham (Berkshire) ; Brockenhurst and Lyndhurst (Hampshire) ; Newport and Whitcombe (Isle of Wight) ; Bath, Porlock, Porlock Weir and Ashley-Combe near Porlock Weir (Somerset) ; Braunton, Hartland Quay, Lynton and Sidmouth (Devonshire) ; St. Ives (Cornwall).

FRANCE : Buré d'Orval (Meurthe-et-Moselle) ; Strasbourg (Bas-Rhin) ; Etupes (Doubs).

NETHERLANDS : Terschelling (Friesian Island) ; Wilp, Renkum, and Oosterhout near Nijmegen (Gelderland).

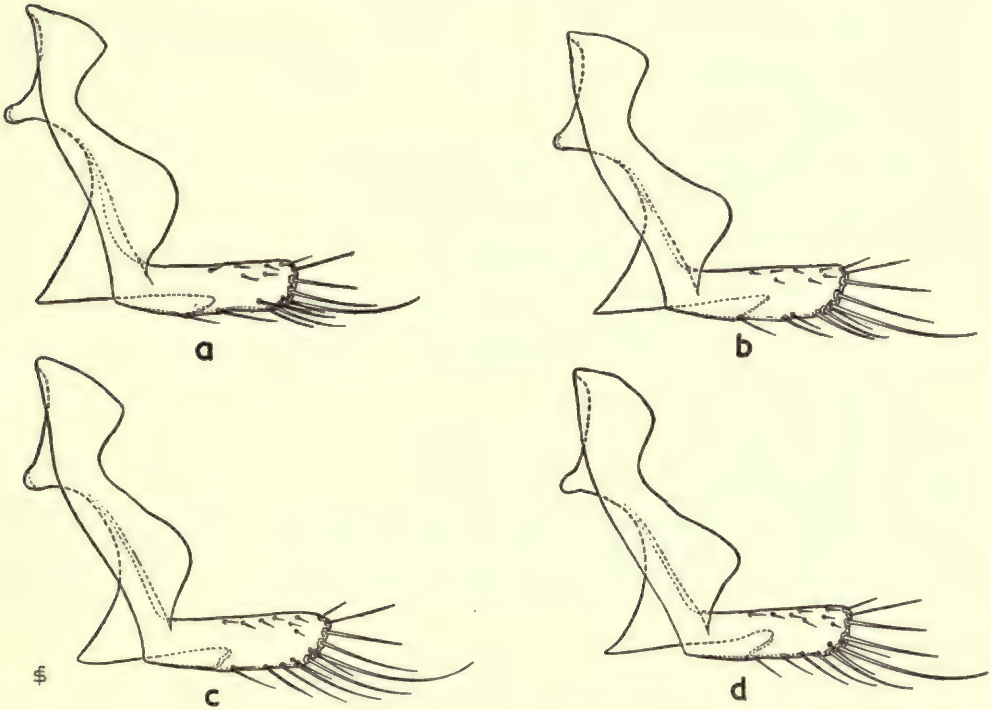

FIG. 14. *Palaeopsylla soricis starki* Wagner. Sternum IX of four males (*a*, Biharfüred, Romania ; *b*, Oulu, Finland ; *c* and *d*, Tvärminne, Finland).

GERMANY : Sarstedt (Niedersachsen) ; Diez a. d. Lahn (Rheinland) ; Beuron (Württemberg).

SWITZERLAND : Weissenstein range (Jura) ; Mt. Jorat near Lausanne (Vaud) ; Bex, Zermatt, and Münster (Valais) ; Gurten near Bern (Bern) ; Göschenen (Uri) ; St. Moritz, Campfer and Vulpera (Grisons) ; Bellinzona and Contra near Locarno (Ticino).

ITALY : Fiè [formerly Völs] and below Rolle Pass (Dolomites).

Palaeopsylla soricis rosickyi[1] subsp. n.

(Text-figs. 13, 16, 19)

Palaeopsylla sorecis Dale. Wagner, 1930, *Acta Soc. ent. jugoslav.* **3–4** : 24 (Slovenia, Yugoslavia) ; Rosický, 1947, *Ent. Listy*, **10** : 31 (Jeseniky, Czechoslovakia) ; Rosický, 1950, *Vestn. Csl. Zool. Spol.* **14** : 138–140 (Czechoslovakia) ; Rosický, 1952, *Acta ent. Mus. nat. Prag.* **28** : 7 (Czechoslovakia) ; Niewiadomska, 1953, *Fragm. faun. Mus. Zool. polon.* **6** : 257 (Gorzów, Poland) ; Skuratowicz, 1954, *Acta Parasitol. polon.* **2** : 80 (Poland : Lobodno, Bołków, Gorzyn) ; Lachmajer & Skierska, 1956, *Wiadom. Parazytol.* **2** : 107 (Szczecin district, Poland) ; Jurik, 1957, *Prir. Sborn. Ostrav. Kraje*, **18** : 120 (Jeseniky, Czechoslovakia) ; Radvan, 1959, *Acta Mus. Reginaehrad.* **2** : 196 (Hradec Králové district, Czechoslovakia).

Palaeopsylla soricis soricis (Dale). Smit, 1953, *Ent. Medd.* **26** : 534 (Denmark) ; Rosický, 1955, *Zool. ent. Listy*, **4** : 368 (High Tatra, Czechoslovakia) ; Smit, 1955, *Cat. Faun. Austr. XIXz* : 3 (Austria) ; Rosický, 1959, *Acta Mus. nation. Prag.* **15** : 150, 154 (Krkonose, Czechoslovakia) ; Rosický & Carnelutti, 1959, *Csl. Parasitol*: **6** : 142 (Slovenia, Yugoslavia).

Description. Male. Apical margin of distal arm of sternum IX almost as oblique as in the nominate subspecies (Text-fig. 13, cf. Text-fig. 12). Dorso-posterior angle of lateral wall of aedeagus (Text-fig. 16) smoothly rounded ; below this angle the margin of the right-hand side wall is somewhat thickened ; the outer surface of the apical portion of the lateral wall virtually without striae (which are distinct in the nominate subspecies) ; for other differences in the aedeagi between this and the other subspecies contrast Text-fig. 16 with Text-figs. 15 and 17.

Female. Not distinguishable from that of the nominate subspecies or from that of *P. s. starki*.

The distribution, shown in Text-fig. 19, is based on the data of the male specimens in the material listed below.

Material examined :

Czechoslovakia : Male holotype, female allotype and two male and two female paratypes from Cheb [formerly Eger], Bohemia, *Sorex araneus*, 1.vi.1908 (*E. Hentschel*) ; 1 ♂, Karlova Studánka [formerly Karlsbrunn], Jeseniky, *Sorex araneus*, 4.iv.1934 (*K. Maschke*).

Sweden : 2 ♂, Skanör.

Denmark : 1 ♂, Ryget (Sjaelland), *Sorex* sp., 15.xi.1919.

Germany : 4 ♂, 2 ♀, Magdeburg, *Sorex araneus*, 4.viii.1911 (*O. Ringelke*) ; 1 ♂, 2 ♀, Biederitz near Magdeburg, *Sorex araneus*, 26.viii.1900 (*O. Ringelke*) ; 3 ♂, Haag am Amper, Bavaria, *Neomys fodiens*, 15.v.1948 (*G. Heinrich*) ; 5 ♂, 2 ♀, Haag am Amper, *Sorex araneus*, iv–v.1948 (*G. Heinrich*) ; 1 ♂, Haag am Amper, *Talpa europaea*, 1948 (*G. Heinrich*) ; 3 ♂, 1 ♀, Berchtesgaden, 1,200 m., Bavaria, *Neomys fodiens*, v.1947 (*G. Heinrich*) ; 1 ♂, Berchtesgaden, 1,100 m., *Sorex alpinus* (*G. Heinrich*) ; 1 ♂, Waldmünchen, Bavaria, 800 m., *Sorex alpinus* (*G. Heinrich*) ; 1 ♂, Niesky, Schlesien, *Mus musculus*, (*W. Baer*).

Poland : 1 ♂, 1 ♀, Lobodno, Katowice Province, *Sorex araneus*, 1949 (*W. Skuratowicz*) ; 1 ♂, Bolkôw, Wroclaw Province, nest of *Erinaceus europaeus*, 24.vii.1952 (*J. Rafalski*) ; 1 ♂, 1 ♀, Stare Jablonki, Olsztyn Province, *Sorex araneus*, 24.v.1955

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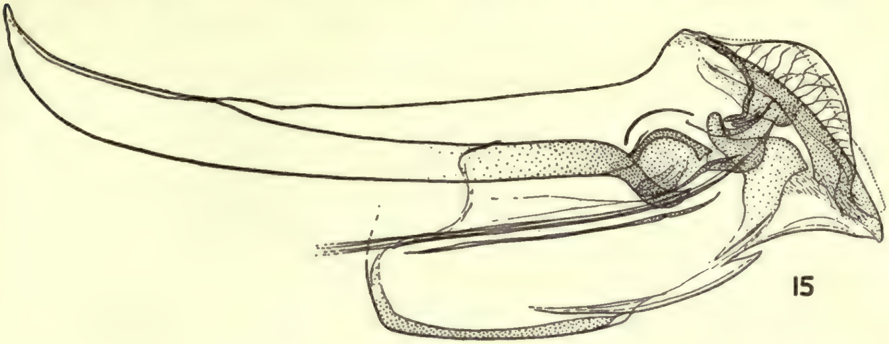
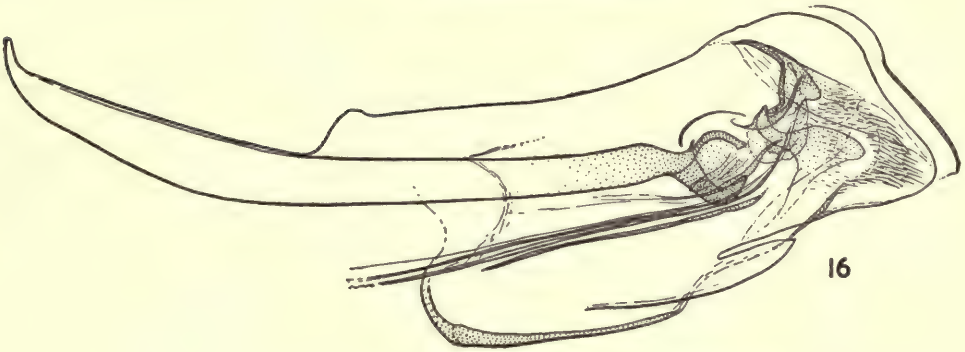
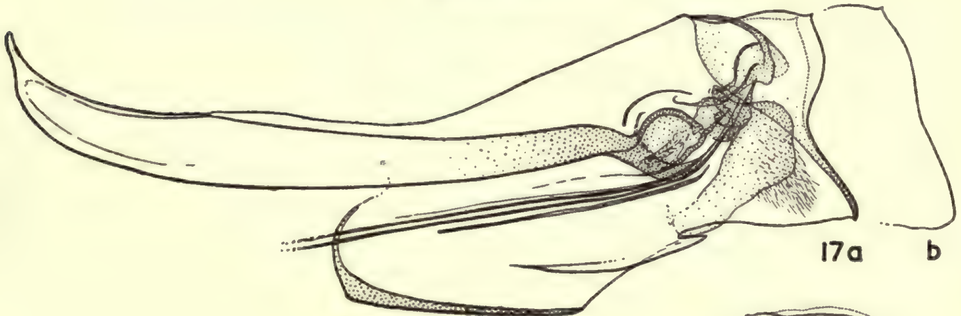
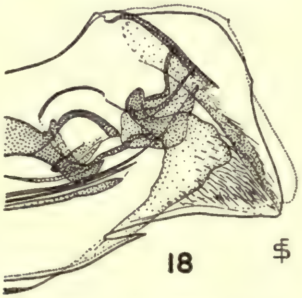
[1] Pronounced as rosítskii.









FIGS. 15–17. Phallosome of : 15. *Palaeopsylla soricis soricis* (Dale) (neotype) ; 16. *P. soricis rosickyi* subsp. n. (Karlova Studânka, Czechoslovakia) (in this figure the right-hand side apical margin is shown separately) ; 17. *P. soricis starki* Wagner (*a*, Biharfüred, Romania ; *b*, Tvärminne, Finland).

FIG. 18. Aedeagus of specimen intermediate between *P. soricis starki* and *P. soricis rosickyi* (Abisko, Sweden).

(*W. Skuratowicz*); 1 ♂, Hofeberg, Glatzer Schneeberg, *Sorex* sp., 31.xii.1936 (*F. Pax*).

Austria: 2 ♂, Ferleiten (Salzburg), 1,150 m., *Sorex alpinus*, 2.vii.1951 (*K. Jordan*); 2 ♂ Ferleiten, *Clethrionomys glareolus*, 5 and 16.vii.1951 (*K. Jordan*); 1 ♀, Ferleiten, *Crocidura russula russula*, 21.vii.1951 (*K. Jordan*); 5 ♀, Ferleiten, *Sorex araneus tetragonurus*, 30.vi.1951 to 21.vii.1951 (*K. Jordan*); 1 ♂, Sölling (Niederösterreich), *Sorex araneus*, 6.ix.1951 (*F. Ressl*); 2 ♂, Admont (Steiermark), 1,200 m., *Sorex araneus*, vi.1950 (*G. Heinrich*); 1 ♂, Admont, 1,000 m., *Sorex alpinus*, 12.vi.1950 (*G. Heinrich*).

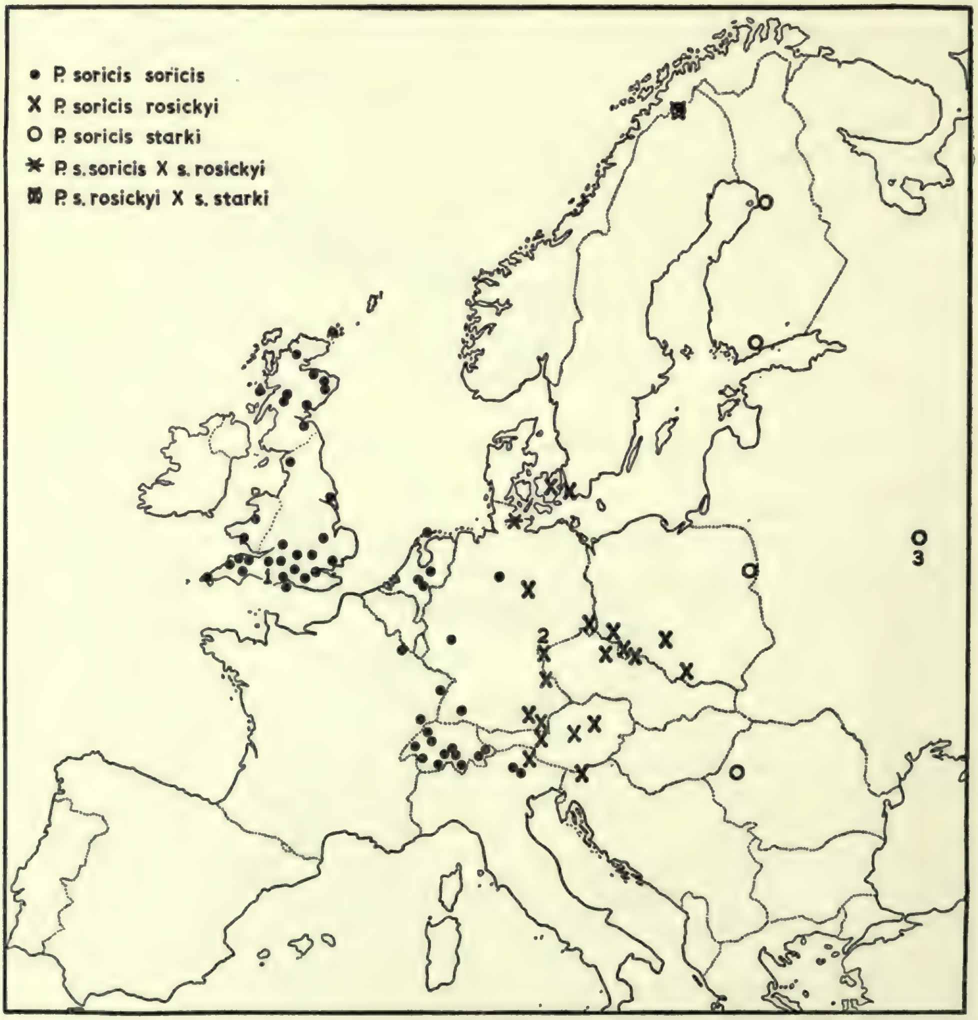

● P. soricis soricis
X P. soricis rosickyi
O P. soricis starki
✱ P. s. soricis X s. rosickyi
▨ P. s. rosickyi X s. starki
1
2
3

Fig. 19. Map showing the distribution of subspecies of *Palaeopsylla soricis* in Europe. 1 = Type locality of *P. soricis soricis* (Dale) (i.e. locality of neotype); 2 = Type locality of *P. soricis rosickyi* subsp. n.; 3 = Type locality of *P. soricis starki* Wagner.

YUGOSLAVIA : 1 ♂, 1 ♀, Jezersko, Slovenia, *Sorex* sp., viii.1936 (*J. Wagner*) [in Canadian National Collection].

ITALY : 12 ♂, 9 ♀, Misurina, Dolomites, *Sorex* sp., 30.vi.1926 (*K. Jordan*).

Through the courtesy of Prof. Dr. F. Peus I have seen a male from Kiel, Holstein, Germany, which is intermediate between this and the nominate subspecies, while Mr. G. P. Holland very kindly enabled me to study a male from Abisko, Sweden, which I regard to be intermediate between P s. *rosickyi* and *P. s. starki* (the aedeagus of this specimen is shown in Text-fig. 18 ; the apex of the distal arm of sternum IX [not figured] is oblique).

This new subspecies is named in honour of Dr. B. Rosický, an ardent and prolific student of the Central European flea-fauna.

Palaeopsylla soricis starki Wagner, 1930

(Text-figs. 14, 17, 19)

Palaeopsylla soricis starki Wagner, 1930, *Annu. Mus. Zool. Acad. Sci. U.R.S.S.* **30** : 542 (Orlovskiye Dvoriki, Bryanskaya oblast, U.S.S.R., from shrews) ; Argyropulo, 1941, *Trav. Mus. zool. Acad. Sci. R.S.S.Ukr.* **24** : 16 (Kiyev oblast) ; Vysotskaya & Sazonova, 1953, *Parazit. Sborn. zool. Inst. Akad. Nauk S.S.R.* **15** : 394 (Priozersk rayon, Leningrad oblast, Moscow oblast) ; Ioff & Tiflov, 1954, *Keys Aphaniptera south-east U.S.S.R.* : 93, 178, figs. 70, 141 (left-hand portion), 213.

Palaeopsylla starki Wagner (in litt.). Ioff & Tiflov, 1930, *Mag. Parasit., Leningr.* **1** : 218 (Saratovskaya oblast).

Palaeopsylla sorecis Dale. (?) Dampf, 1910, *Zool. Jb.*, Suppl. **12** : 620, figs. C, D (East Prussia, now NE. Poland) ; (?) Dampf, 1910, *Schr. phys.-ökon. Ges. Königsb.* **51** : 43, figs. 1, 2 ; 1911, *l.c.* **51** : 329, figs. 2, 5*b* (East Prussia, now NE. Poland) ; Dampf, 1912, *Korr.-Blt. Naturf. Ver. Riga,* **55** : 25 (Estonian S.S.R.) ; Jordan & Rothschild, 1912, *Novit. zool.* **19** : 62 (Bihar Mts., now in Romania) ; Nordberg, 1935, *Memor. Soc. Fauna Flora fenn.* **10** : 360 (Uusimaa, Finland) ; (?) Martino, 1955, *Izv. Zool. Inst. Bulg. Akad. Nauk,* **4–5** : 418 (Sofia, Bulgaria) ; Medinskij & Dajtyer, 1955, *Tez. Dokl.* 8 *Soveshch. parazitol. Probl.* : 97 (NW. Estonian S.S.R.) ; Lachmajer & Wegner, 1956, *Wiadom. Parazytol.* **2** : 103 (Bialowieza, E. Poland) ; (?) Rosický, 1959, *Acta Acad. Sci. czechoslov. brun.* **31** : 335 (Rila, Pirin and Vitoša Mountains, Bulgaria).

MALE. Apical margin of distal arm of sternum IX usually markedly obtuse (Text-fig. 14, cf. Text-figs. 12 and 13). Dorso-posterior angle of lateral wall of aedeagus (Text-fig. 17) drawn out into a small sharp point ; for other differences between the aedeagus of this and the other subspecies contrast Text-fig. 17 with Text-figs. 15 and 16.

The distribution, shown in Text-fig. 19, is based on male specimens which I have examined from the following localities :

FINLAND : Oulu (Oulu) ; Tvärminne (Uusimaa).

POLAND : Bialowieza National Park.

ROMANIA : Biharfüred (Bihar Mts.).

Although the type-locality is marked on the map (Text-fig. 19, No. 3) I have not seen any topotypical material. However, Mrs. N. F. Darskaya most kindly compared the aedeagus of a Romanian specimen, as figured in Text-fig. 17*a* with the aedeagus of a male of *P. s. starki* from the Bryanskaya oblast (in the I. G. Ioff collection) and she informed me that—apart from an unimportant small difference—the two aedeagi agree perfectly.

ACKNOWLEDGMENTS

For the loan and/or gift of specimens of *Palaeopsylla* I am deeply indebted to Prof. P. Brinck (Lund, Sweden), Mr. R. S. George (Gloucester, England), Mr. G. P. Holland (Ottawa, Canada), Dr. E. W. Jameson (Davis, California), Prof. Dr. F. Peus (Berlin, Germany), Dr. R. Radvan (Hradec Králové, Czechoslovakia), Mr. F. Ressl (Purgstall, Austria), Dr. W. Skuratowicz (Poznan, Poland), Dr. V. E. Tiflov (Stavropol, U.S.S.R.) and to Lt.-Col. R. Traub (Washington D.C., U.S.A.). I am also most grateful to Mrs. N. F. Darskaya for information about species of which I have no representatives available for study.

BRITISH MUSEUM
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SOME NEW DIASPIDINI (COCCOIDEA : HOMOPTERA) FROM AFRICA

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ENTOMOLOGY Vol. 9 No. 8
LONDON : 1960

SOME NEW DIASPIDINI (COCCOIDEA : HOMOPTERA) FROM AFRICA

BY

D. J. WILLIAMS Xrf.
Commonwealth Institute of Entomology

Pp. 387–399 ; 5 *Text-figures*

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SOME NEW DIASPIDINI (COCCOIDEA : HOMOPTERA) FROM AFRICA

By D. J. WILLIAMS

SINCE Hall (1946) published his work on the Ethiopian Diaspidini a number of new species have appeared among collections sent for identification from Africa. Five of these are described below as new.

It seems evident that the known Diaspidini from the Ethiopian Region represent a small proportion of those still to be discovered. Collecting has been associated mainly with some problems of economic importance and the coccid fauna is completely unknown in many areas. The following species collected from various parts of the African continent belong to four genera. They show some interesting features and give us further clues to distribution. One of them is recorded as doing severe damage to sisal.

The holotypes are deposited in the British Museum (Natural History).

Fulaspis karroo sp. n.

(Text-fig. 1)

Female scale yellowish white, elongate, exuviae pale brown, about 1·5 mm. long. Male scale 1 mm. long, whitish and smooth, uncarinated, exuviae pale brown. On the stems and under surfaces of the leaves.

Adult female fusiform measuring about 1·2 mm. long, body membranous except for pygidium. Antennae each with 1 short and 3 long setae. Anterior spiracles with 1 or 2 pores.

Pygidium rounded, anal ring situated towards base. Median lobes well developed, set well apart, divergent and rounded at apices, edges slightly serrated. Second lobes with inner lobules narrower than median lobes but often projecting more posteriorly, longer than wide, rounded at apex ; outer lobule similar but smaller. Third lobes paired but much smaller than other lobes. Gland spines forked at apices, there being a pair between median lobes, these slightly shorter than lobes, others longer and arranged singly on margins of fifth to seventh segments and in pairs on third and fourth segments, those on seventh segment often curved beneath outer lobules of second lobes.

Marginal macroducts numbering 6 on each side of pygidium, second to third and fourth to fifth paired and each duct on segment 4 slightly smaller than others. A single macroduct also present between median lobes but inclining to either one or other of lobes, rarely with a pair of ducts between lobes. Dorsal ducts numerous but much smaller than marginal macroducts, becoming smaller anteriorly, there

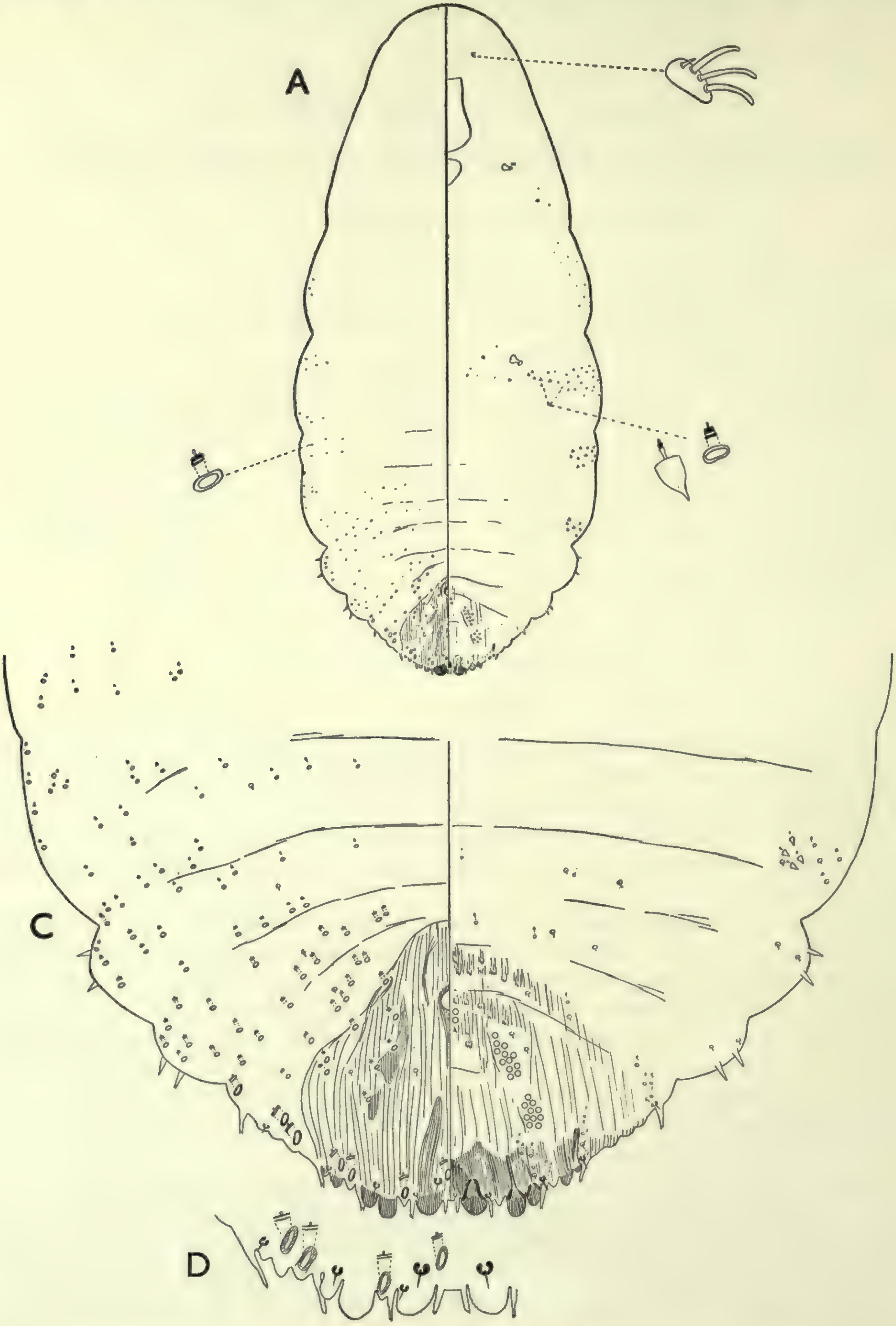

FIG. 1. *Fulaspis karroo* sp. n.

being a submedian group of about 4 on the sixth segment and anteriorly to second segment the submarginal and submedian groups merge. Submarginal groups present also on metathorax and mesothorax.

Ventral surface with perivulvar pores in 5 groups, a median group usually with 4–5 pores, antero-lateral groups each with 9–12 pores and postero-lateral groups each with 8–10 pores. Submarginal groups of micropores situated on fifth to seventh segments and groups of submarginal gland tubercles and ducts on metathorax and first abdominal segment, the ducts of similar size to those in corresponding positions on dorsum. Microducts also present on mesothorax and in median areas of third to fifth segments.

South Africa, Transvaal, Pienaarspoort, on *Acacia karroo*, E. C. G. Bedford, 15.xii.1954.

Balachowsky (1952) described and placed the genus *Fulaspis* in the subtribe Lepidosaphina, the distinguishing feature being the presence of either one or two macroducts between the median lobes. The two species so far described by Balachowsky (1952, 1954) are *F. guilliermi* from Guinea on *Macaranga* sp. and *F. bytinskii* from Palestine on *Acacia spirocarpa*. The new species comes closest to *F. guilliermi* in possessing perivulvar pores but apparently differs from both species in possessing a more rounded pygidium. All three species may be separated by the following key.

1. Perivulvar pores present 2
–. Perivulvar pores absent . . . . *bytinskii* Balachowsky
2. Dorsal ducts absent on seventh segment, ventral microducts present on pygidium *karroo* sp. n.
–. Dorsal ducts present on seventh segment, ventral microducts absent on pygidium *guilliermi* Balachowsky

Howardia stricklandi sp. n.

(Text-fig. 2)

Female scale pale brown, elongate, exuviae terminal, size approximately 3·0 mm. × 1·0 mm. Male scale not seen. The features of the scale are difficult to determine as the insect lives under the bark of young twigs.

Adult female fusiform, attaining a length of 2·5 mm., membranous except for pygidium. Marginal tubercles present on second to fourth segments, each heavily sclerotized and blunt and accompanied by a gland spine. Antennae represented by a tubercle with about 7 long, pointed setae. Anterior spiracles each with 5–6 pores, posterior spiracles usually with a single pore.

Pygidium with anal ring small and round, situated at base. Median lobes large, more or less triangular in shape, inner edges with 2 indentations, divergent, outer edges serrate. A pair of well developed scleroses set obliquely and arising from inner edges of the lobes. Second lobes apparently absent ; third lobes represented by a serrate thickening of the margin. Gland spines slender and often curved, there being a short pair between median lobes and a short pair on either side of seventh segment. Anteriorly they are longer in groups of 3–5 on the margins as far as the fourth segment. Dorsal ducts all short and slender and except for a submedian pair on

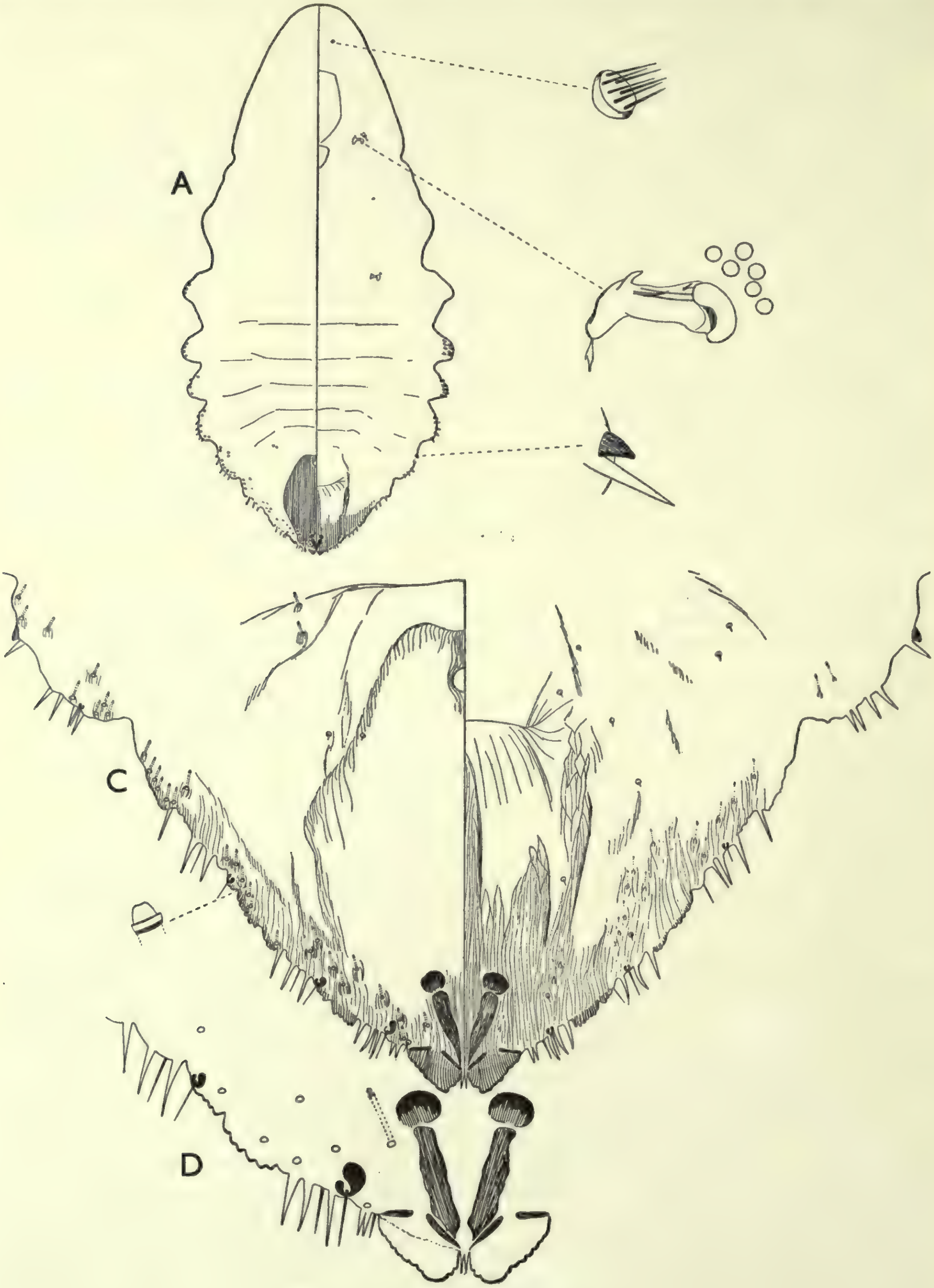

FIG. 2. *Howardia stricklandi* sp. n.

fifth segment are situated in small groups around the margin anteriorly to metathorax.

Ventral surface with perivulvar pores absent. Sub-marginal micropores present on pygidium only. Anterior abdominal segments with marginal groups of small gland tubercles, never occupying submedian positions.

Ghana, Tafo, on *Theobroma cacao*, A. H. Strickland, 6.vi.1946.

A number of species have been placed in the genus *Howardia* Berlese & Leonardi but all have been assigned to other genera as they are not congeneric with the type *H. biclavis* (Comstock). This new species seems certainly to belong to *Howardia* although the main difference is the shape, which is fusiform and membranous whilst *H. biclavis* is turbinate and heavily sclerotised at maturity. The characters of the pygidium, however, are very similar especially in the form of the median lobes and clavate scleroses. Apart from the shape, the species may be separated by the absence of the second lobes and dorsal submedian ducts.

Balachowsky (1954) placed the genus *Howardia* in the group Diaspiformes of the subtribe Diaspidina mainly because of the circular shape of the female scale and the turbinate shape of the adult female of *biclavis*. The new species would seem to have closer affinities with the subtribe Lepidosaphina and the genus is probably aberrant within this group.

Lepidosaphes tapleyi sp. n.

(Text-fig. 3)

Female scale elongate, narrow, attaining a length of 2·5 mm., dull, pale brown to shiny reddish brown, exuviae same colour. Male scale pale brown about 1·2 mm. long.

Adult female about 1·0 mm. long, elongate-oval and widest across the second abdominal segment; derm membranous except for pygidium. Second and third abdominal segments each with a small pointed marginal tubercle which is heavily sclerotized. Antennae with a single curved seta. Anterior spiracles with 2 or 3 pores.

Pygidium with anal ring situated at base. Median lobes, well developed, each with 2 indentations on inner margin and 1 on outer margin. Second lobes with inner lobule about half as wide as a median lobe but about same length, with an indentation on each side; outer lobule about half as wide and long as inner lobule. Gland spines slender, arranged in pairs on each segment up to the third abdominal segment, those between the median lobes slightly longer than the lobes, becoming longer on the sixth and seventh segments and shorter anteriorly. Dorsal marginal macroducts 6 in number on either side of pygidium. Sixth segment with 1–3 submedian ducts, the usual number being 2. Fifth segment with a single submarginal duct and 2–3 submedian ducts. Fourth and third segments each with submarginal and submedian groups merging and ending on either side a short distance from the midline but sometimes forming a row across entire segment. Second segment with submarginal and submedian groups, the latter much reduced in number and never reaching the midline. First segment and metathorax with submarginal groups only.

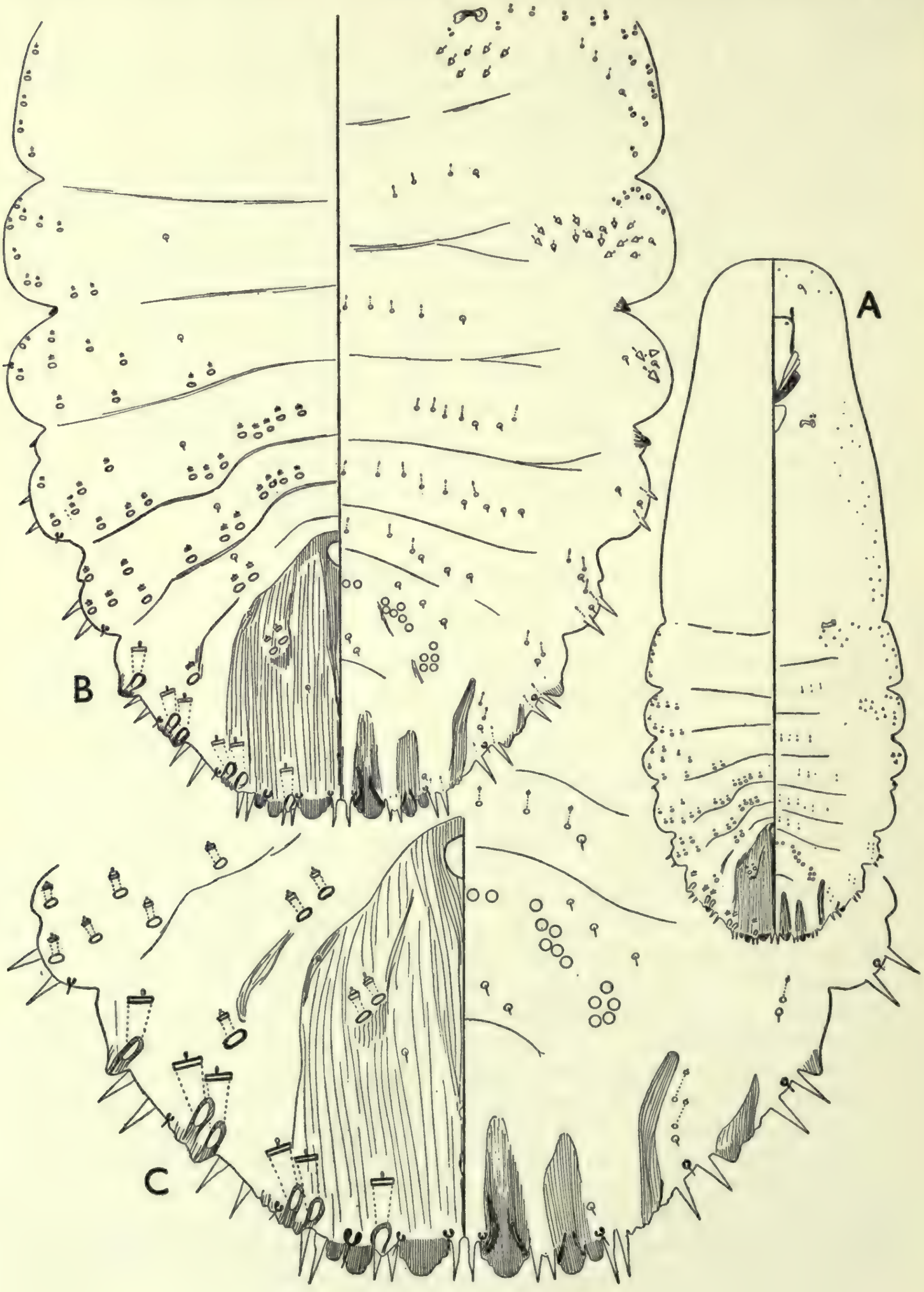

FIG. 3. *Lepidosaphes tapleyi* sp. n.

Ventral surface with perivulvar pores in 3 groups, the median group usually with 4 pores, the antero-lateral groups each with 5–8 pores and each postero-lateral group with 4–5 pores. Submarginal micropores present on fourth to sixth segments and transverse rows on median areas of all prevulvar abdominal segments. Submarginal gland tubercles present on first and second segments only, there being a group of about 12 on the first segment and always 3 on the second segment. Another group also present posterior to second pair of spiracles. Small ducts also present on margins of first segment and between the spiracles and margins on metathorax. Other smaller ducts situated on submargins of mesothorax.

Tanganyika, Usa, on sisal (*Agave sisalana*) on both surfaces of the leaves, 26.viii. 1955. Sudan, Shendi, on *Mangifera indica*, on under surfaces of leaves, W. J. Hall, 16.i.1958, (Holotype) ; Khartoum, *Citrus* sp., on both surfaces of the leaves, A. J. Jones, March 1959.

Causing severe but localized damage to sisal on the sides of dusty roads.

This species comes very close to *L. pallida* Green described from Ceylon but differs from all the typical material seen in a few small characters which seem to be constant and the specimens from Africa are, therefore, regarded as distinct. In *L. tapleyi* the marginal tubercles on the second and third segments are always pointed and heavily sclerotized whereas in *L. pallida* only the tubercles on the second segment are pointed, those on the third segment are flat and rounded. The submarginal tubercles on the second segment in *L. tapleyi* are always 3 in number but there are 5–6 in *L. pallida*. Posteriorly the gland spines in *L. tapleyi* are always in pairs whereas in *L. pallida* there are usually 3–4 on the third and fourth segments. Although the pattern of the dorsal ducts is similar in both species the ducts tend to be more numerous in *L. pallida* and there are often 4 or more submedian ducts on the fifth segment whereas in *L. tapleyi* there are never more than 3. Furthermore the colour of the scale in the material from Ceylon is of a yellow-brown or straw colour whereas in all the African material the scale is of a definite brown colour ranging from pale brown to reddish brown.

The species is named after R. G. Tapley, Entomologist, Department of Agriculture, Tanganyika, who first drew the writer's attention to it.

Rolaspis monile sp. n.

(Text-fig. 4)

Scale of female shiny white, elongate about 2·5 mm. long, exuviae pale brown. Male scale white, 1·0 mm. long. The scales are found on the edges of the leaves and the collector has remarked that the white margin thus formed is very conspicuous in the sunshine.

Adult female elongate-oval measuring approximately 1·75 mm. long. Dorsum at maturity becoming sclerotized in a characteristic fashion (see accompanying diagram). Antennae each with a single seta. Each anterior spiracle with about 4 pores.

Pygidium with a small anal ring situated towards base. With 2 pairs of lobes ;

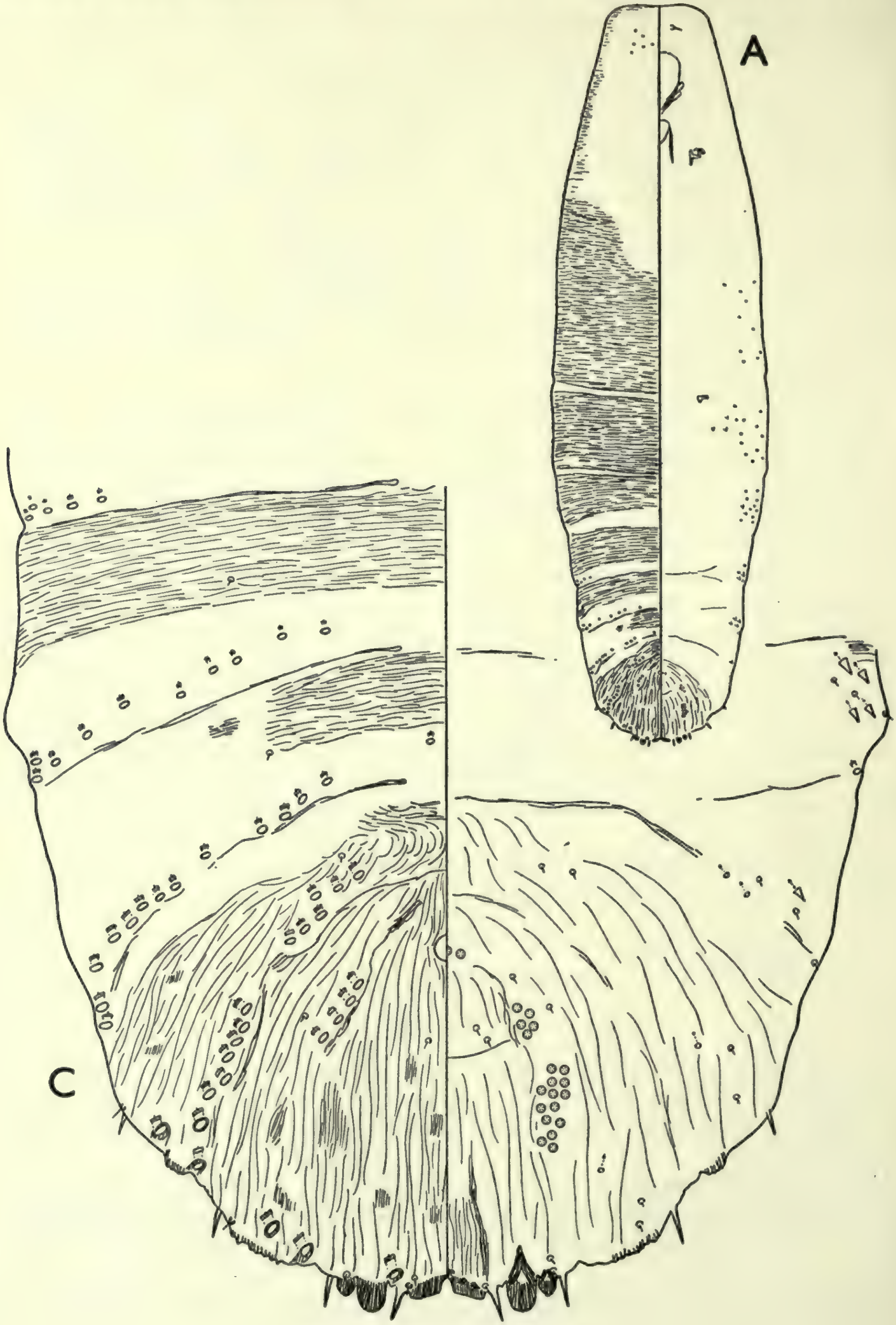

FIG. 4. *Rolaspis monile* sp. n.

median lobes very short and wide, slightly divergent with a distinct U shaped notch between and yoked at the base by a narrow sclerotized band, posterior edges straight and divergent ; second lobes bilobed, inner lobule about as long as wide and projecting further than median lobes, apex rounded, outer lobule similar in shape but much smaller. Gland spines narrow and longer than second lobes, arranged singly on the margins up to fifth abdominal segment. Dorsal ducts about same size on fifth and posterior segments but becoming smaller anteriorly and towards the midline, there being a single marginal duct between median and second lobes and a pair on each margin of sixth segment, these accompanied by a group of about 2–4 submedian ducts in a single row. Fifth segment with a pair of marginal ducts and more or less single rows of submarginal and submedian ducts. Fourth and third segments with single rows of ducts, the submarginal and submedian groups merging and often present in median areas forming rows across entire segments. Second segment with a small group of submarginal ducts only.

Ventral surface of pygidium with perivulvar pores in 5 groups, a median group of 1–4 pores, antero-lateral groups each with 6–10 pores and postero-lateral groups each with 11–15 pores. Gland tubercles and small ducts in submarginal groups from fourth segment to metathorax, becoming more numerous anteriorly, those on the metathorax reaching as far as a point posterior to second spiracles. Mesothorax with a scattered group of small submarginal ducts.

Angola, Missão de Santa Cruz, Cuando, N. Riquinha, on *Diospyros batocana*, H. K. Munro, 11.viii.1952.

This is a distinctive species with very short median lobes coming closest to *R. procera* De Lotto described from Kenya. It differs from this species in having much fewer dorsal ducts and also in the character of the marginal pygidial ducts which are normal instead of possessing microducts on the capitate heads.

The squat median lobes suggest a close relationship to the genus *Voraspis* Hall. This genus contains species with supplementary rows of pores on segments 3, 4 and 5 which, apart from one or two occasional pores, are absent in *R. monile*.

Rolaspis syrinx sp. n.

(Text-fig. 5)

Scale of adult female white, slightly widened apically ; exuviae pale brown, length 2·0 mm. Male scale white with smooth surface, uncarinated, length 1·2 mm.

A small elongate species measuring approximately 1·0 mm. in length. Body moderately sclerotized at maturity except pygidium which is more heavily sclerotized. Antennae each with a single stout seta. Anterior spiracles each with about 5 pores. Pygidium with small anal ring situated towards base. Two pairs of lobes present ; median lobes well developed, divergent, the space between forming a V, inner and outer edges serrated and the bases yoked together by a narrow sclerotized band ; second lobes bilobed, inner lobule longer than wide with a notch on either side, projecting a little more posteriorly than median lobes, outer lobule similar in shape to inner lobule but much smaller. Gland-spines paired, in each case composed of a

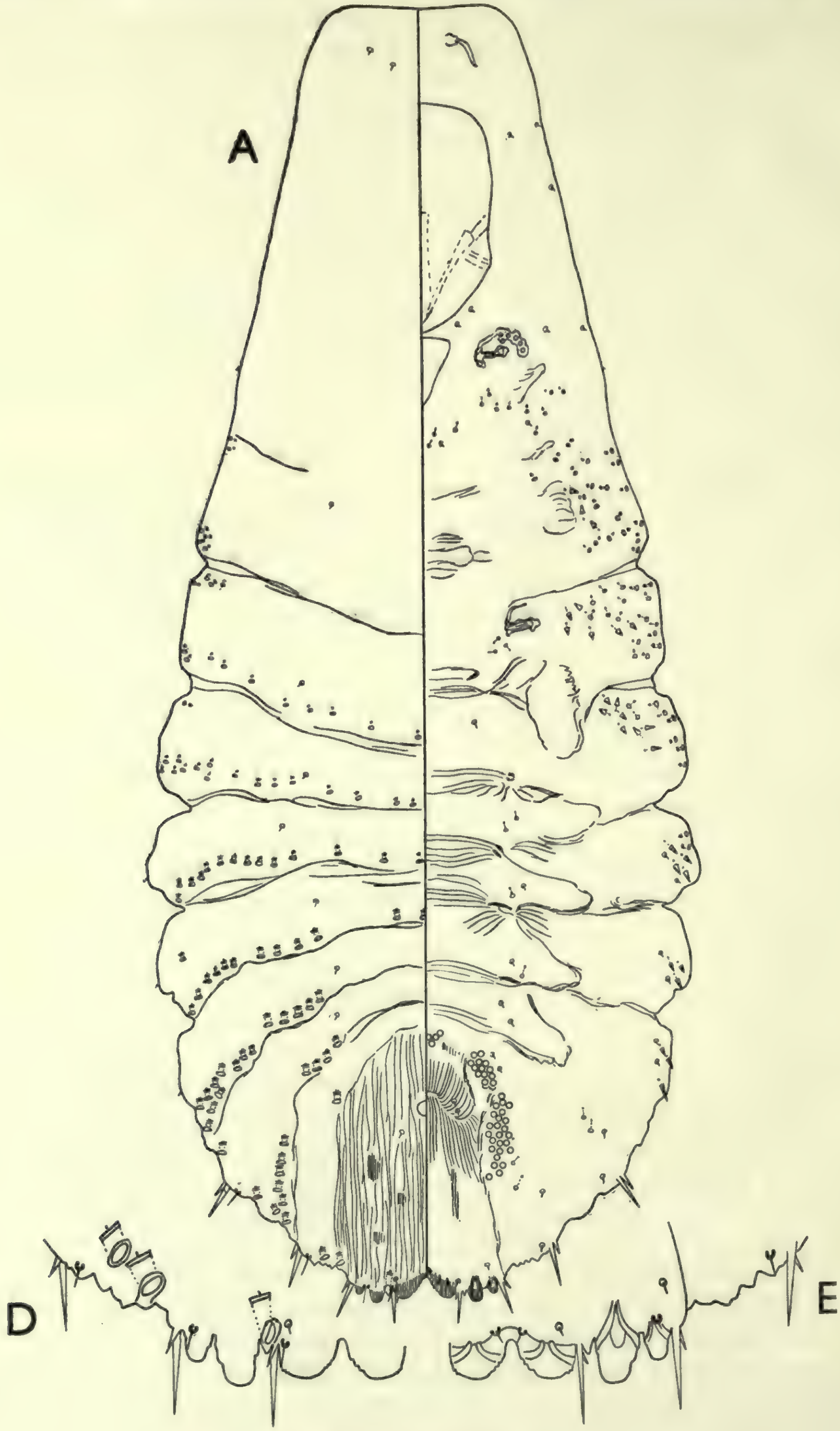

FIG. 5. *Rolaspis syrinx* sp. n.

long, slender spine and another very short spine, there being one such pair between median and second lobes and a pair on margins anteriorly to fifth segment. Dorsal tubular ducts of similar shape and size up to third abdominal segment and becoming smaller anteriorly. A single marginal duct present between median and second lobes and a pair on each margin of sixth segment, the latter accompanied usually by a single submedian duct but these often absent. Fifth segment with about 3 marginal ducts and submarginal and submedian groups. Anteriorly the submarginal and submedian groups merge in well defined rows and on the third segment and up to metathorax the ducts form transverse rows across the entire segments.

Ventral surface of pygidium with perivulvar pores in 5 groups, a median group with 3–6 pores, antero-lateral groups each with 12–17 pores and postero-lateral groups each with 17–30 pores, the lateral groups often merging. Gland tubercles present in submarginal groups on fourth segment and becoming more numerous anteriorly to mesothorax, these accompanied on the second and anterior segments with groups of tubular ducts of a similar size to those in corresponding positions on dorsum. Short microducts associated with these ducts on the thorax and anterior abdominal segments and in a noticeable group posterior to first pair of spiracles. Others present in submedian areas of metathorax and abdominal segments and also in submarginal areas of pygidium.

On the leaves of *Bulbophylum falcipetalum*, Njala, Sierra Leone, F. A. Squire, 11.xi.1948.

This species comes nearest to *R. spiculata* Hall but differs in having each gland spine on the pygidium accompanied by a small adventitious gland spine and also in the fewer dorsal ducts in the submedian group of the sixth segment.

DESCRIPTION OF FIGURES

The lettering used in the figures is as follows :—A. Adult female, general aspect. B. Abdomen. C. Pygidium. D. Dorsal margin of pygidium. E. Ventral margin of pygidium.

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PAR

RENÉ JEANNEL

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Pp. 401–456 ; 95 *Text-figures*

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SUR LES PSELAPHIDES (COLEOPTERA) DE L'INDE SEPTENTRIONALE

Par le Dr. René Jeannel

M. E. B. Britton a mis à ma disposition un lot de très nombreux Psélaphides indéterminés, provenant de la Région Orientale et reçus au British Museum au cours des cinquante dernières années. En présence de matériaux aussi considérables, j'ai préféré en aborder l'étude successivement, par régions naturelles. De cette façon il sera plus facile de mettre en relief les faits biogéographiques émanant de l'étude des espèces, qui d'ailleurs sont nouvelles, dans l'immense majorité.

Ce premier mémoire a pour objet la faune de l'Inde, et principalement de l'Inde septentrionale. D'autres suivront sur la faune de Ceylan et de l'archipel malais.

Si je commence cette étude des matériaux qui m'ont été confiés par ceux de l'Inde, c'est parce qu'ils renferment en abondance des espèces de l'Himalaya et qu'on ne connaissait absolument rien sur les Psélaphides de cette contrée.

On sait combien sont souvent précieuses les informations fournies par ces petits Coléoptères humicoles sur la genèse des faunes montagnardes. Ne fallait-il pas s'attendre à ce que les Psélaphides de l'Himalaya apportent quelques faits nouveaux éclairant les problèmes posés par le peuplement de la plus grande chaîne montagneuse du monde?

A la vérité, les résultats généraux de l'étude qui va suivre ne devront pas être tenus pour définitifs. Les 60 espèces actuellement connues de l'Inde septentrionale ne représentent qu'une partie de la faune existante. La plupart des exemplaires que j'ai pu voir ont été pris à la lumière, et les espèces aptères, confinées dans l'humus du sol, celles qui sont de beaucoup les plus intéressantes restent à découvrir. Mais, tout de même, étant donné que nos connaissances sur ces Psélaphides himalayens partent de zéro, l'étude, qui va suivre, de soixante espèces nouvelles présente quelque intérêt.

Il est possible d'ores et déja de dégager les faits suivants :

I. Parmi les Psélaphides de l'Inde septentrionale que j'ai sous les yeux, il ne se trouve aucune espèce appartenant à une lignée paléarctique. Pas d'*Euplectus* vrais ; aucun représentant des deaux grandes tribus angariennes des Bythinini et des Tychini, qui peuplent en abondance les montagnes européennes et atteignent vers l'Est le Japon.

Toutefois, il n'est pas exclu que ces groupes soient tout de même représentés dans la faune himalayenne. Des recherches méthodiques de la faune humicole et endogée pourraient fort bien les faire découvrir.

II. Toutes les espèces connues de l'Inde septentrionale relèvent de lignées gondwaniennes orientales. Mais la faune des pentes de l'Himalaya montre un degré d'endémisme très prononcé. Dans la tribu des Batrisini, dix genres sur douze sont particuliers à l'Inde septentrionale, bien différents de ceux qui peuplent Ceylan et la Malaisie.

Ces Batrisini gondwaniens occupent même parfois des Stations d'altitude élevée, comme par exemple l'*Hingstoniella lata* sp. n., du Sikkim et du Thibet. Le genre *Hingstoniella* nov., très extraordinaire, n'a que des rapports assez lointains avec les *Ceroderma* de la Malaisie. Son isolement sur l'Himalaya doit être fort ancien.

III. Une constatation assez inattendue est celle de la présence dans l'Himalaya de genres appartenant à la faune africaine.

Le genre *Asymoplectus*, de la tribu des Euplectini, s'y trouve avec plusieurs espèces. On sait que ce genre, originaire de l'Afrique australe, est représenté á Madagascar et s'est propagé au cours du Tertiaire sur l'Afrique intertropicale, jusque dans l'Abyssinie. Les espèces de l'Himalaya se rattachent á cette lignée africaine, et il semble donc bien que la migration qui a conduit les *Asymoplectus* en Abyssinie se soit prolongée au delà, jusqu'aux montagnes de l'Asie.

La présence d'un *Batoxyla* (Batrisini) et d'un *Trichopselaphus* (Pselaphini) dans l'Himalaya s'explique par des migrations semblables ; mais celle du *Ctenistidius indicus* sp. n., dans le Kumaon, est un fait d'un autre ordre.

Le genre *Ctenistidius* Jeann., connu du Tonkin, du Kumaon et de l'Afganistan est très étroitement apparenté aux deux genres *Ctenisomorphus* Raffr. et *Ctenisoschema* Jeann. tous deux endémiques sahariens. Ces trois genres de Ctenistini forment une lignée qui a dû se propager d'Asie en Afrique, lors de l'établissement des grands déserts, pendant le Tertiaire. Et les *Ctenistidius*, issus de la souche asiatique, se sont installés dans les montagnes.

Trib. EUPLECTINI Jeannel

Gen. **PHILIOPSIS** Raffray

Philiopsis Raffray, 1892, *Ann. Soc. ent. France*, **61** : 71 ; type : *exigua* Raffray.

Ce genre doit être restreint à quelques espèces indo-malaises. Les nombreuses espèces africaines que j'y ai rattachées forment aujourd'hui le genre *Euphiliops* Jeann. et les espèces malgaches le genre *Paraphiliops* Jeann.

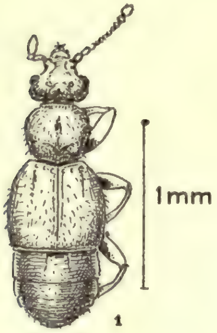
Philiopsis sulcicollis sp. n.

(fig. 1)

INDE. BENGALE OCCIDENTAL : Tiger Hill, Ghum distr., alt. 3,500 m. env., à Darjeeling, une femelle (type) (*Dr. M. Cameron*).

Long. 1, 1 mm. Ailé. Testacé rougeâtre, la pubescence fine mais longue, clairsemée. Assez large et peu convexe, lisse. Tête médiocre, le lobe frontal étroit, saillant, à côtés parallèles, plus large que la moitié du front entre les yeux, sa surface profondément excavée ; bord occipital incisé. Yeux aussi longs que les côtés des tempes qui sont très convexes. Antennes assez longues, le pédicelle oblong, aussi long et aussi large que le scape, funicule grêle, les articles 4 à 8 un peu transverses, le 9 à peine plus long que le 8, le 10 transverse et presque aussi long que le 9, le 11 court. Pronotum plus large que long, peu convexe, ses côtés arrondis, les angles postérieurs effacés, disque avec une profonde fossette médiane prolongée par un sillon. Elytres amples, déprimés ; trois fossettes basales, la strie discale présente. Abdomen court et large, le premier tergite plus long que le deuxième, les carénules basales divergentes, couvrant les deux tiers de la longueur du tergite et écartées de plus du tiers de la largeur du disque à la base.

Bien différent des espèces malaises par la présence d'un sillon médian sur le pronotum.



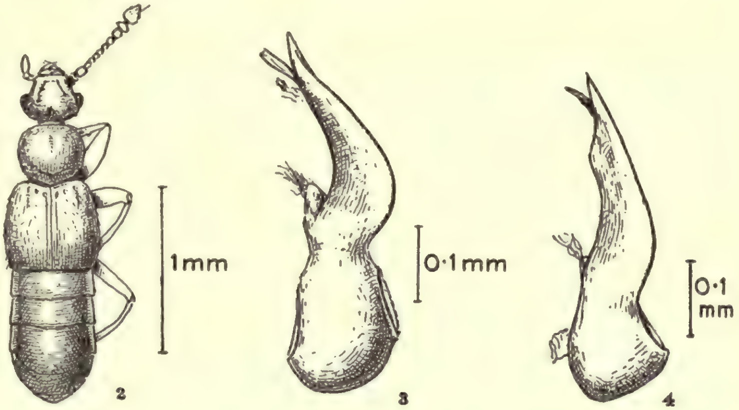


FIG. 1. Gen. *Philiopsis* Raffr.; *Ph. sulcicollis* sp. n., femelle, de Darjeeling, × 34.

FIGS. 2–4. Gen. *Asymoplectus* Raffr. Fig. 2. *A. convexicollis* sp. n., mâle, de Sunderohunga, × 22. Fig. 3. Edéage du même, de profil, × 100. Fig. 4. Edéage de l'*A. crenulatus* sp. n., de W. Almora, × 100.

Gen. *ASYMOPLECTUS* Raffray

Asymoplectus Raffray, 1877 ; type *caviventris* Raffray. Jeannel, 1955, *Mém. Mus., Zool.* **9** : 38.

Ce genre, originaire de l'ancien continent crétacé sudafricano-malgache (Sudamadie) compte de nombreuses espèces autochtones dans l'Afrique australe et à Madagascar,[1] et d'autre part des espèces émigrées dans l'Afrique intertropicale, surtout sur les régions montagneuses de l'Afrique orientale.

Il est donc remarquable que des espèces de ce genre se trouvent dans l'Inde septentrionale, sur les pentes de l'Himalaya, et semblent même y être nombreuses. Ces espèces himalayennes ont tout à fait l'aspect des formes africaines et présentent les mêmes caractères généraux. Toutefois les édéages des deux espèces dont on connait des mâles, sont assez particuliers (Text-figs. 3 et 4) : la capsule basale est sclérifiée, et est prolongée par une lame distale qui porte l'orifice distal à son sommet, alors que chez les *Asymoplectus* africains la capsule basale est membraneuse avec l'orifice apical à la base des pièces distales. Sans doute faudra-t-il séparer les espèces indiennes dans un sous-genre particulier.

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[1] Les espèces malgaches seront décrites dans une Revision des Psélaphides de la région malgache, en cours d'impression.

Les espèces connues de l'Inde sont les suivantes :

1. Pronotum fortement sillonné sur la ligne médiane, les parties latérales du disque déprimées. Long. 1,4 à 1,5 mm. . . . . 1. **crenulatus** sp. n.
–. Pronotum à disque régulièrement convexe, non sillonné, sans dépressions latérales 2
2. Tête petite, à tempes effacées et peu convexes. Long. 2 mm. . 2. **convexicollis** sp. n.
–. Tête grande, arrondie, les tempes convexes 3
3. Pygidium de la femelle atténué en pointe. Long. 1,8 mm. . . 3. **caudatus** sp. n.
–. Pygidium de la femelle simple. Long. 1,8 mm. . . . . 4. **cameroni** sp. n.

1. *Asymoplectus crenulatus* sp. n.

(fig. 4)

Inde Septentrionale. Kumaon : Nainital, alt. 2,600 m. env., un mâle (type) (*H. G. Champion*) ; Gori valley, alt. 2,400 m. env., une femelle (*H. G. Champion*).

Long. 1,4 à 1,5 mm. Testacé rougeâtre luisant, la pubescence fine mais longue. Allongé, peu convexe, lisse. Tête assez grande, le lobe frontal saillant mais court, les sillons frontaux convergents en avant, le vertex convexe, le bord occipital avec une profonde incisure ; yeux un peu plus courts que les tempes qui sont très convexes. Antennes à pédicelle long et épais ; le funicule très grêle, à articles 4 et 5 globuleux, les 6 à 8 un peu transverses, articles 9 et 10 peu épais, un peu transverses, le 11 deux fois plus long que le 10. Pronotum plus large que long, son bord crénelé, les angles postérieurs effacés ; disque peu convexe, avec une profonde fossette médiane prolongée en arrière par un sillon, les parties latérales déprimées autour des fossettes latérales. Elytres amples, plus longs que larges, convexes, trois fossettes basales, la strie discale écourtée. Abdomen relativement large et peu convexe, les troisième et quatrième tergites très grands. Pattes courtes.

Mâle. Fémurs intermédiaires renflés. Tibias antérieurs épaissis dans la partie moyenne qui est presque dentée en dedans, le bout distal du tibia aminci et arqué. Derniers segments abdominaux très grands et infléchis, les derniers sternites asymétriques.

Femelle. Fémurs grêles, tibias simples. Derniers segments abdominaux moins grands.

Edéage (fig. 4) à capsule basale courte et sclérifiée, prolongée par une lame distale peu infléchie, régulière ; son extrémité s'atténue et forme une lame transverse qui porte une apophyse grêle sur le bord gauche ; l'orifice apical s'ouvre à la face ventrale. Pas de styles.

2. *Asymoplectus convexicollis* sp. n.

(figs. 2 et 3)

Inde Septentrionale. United Provinces : Kumaon ; Sunderohunga, alt. 4,000 m. env., à W. Almora, un mâle (type) (*H. G. Champion*).

Long. 2 mm. Ailé. Testacé rougeâtre luisant, lisse, la pubescence très fine et courte, presque nulle sur l'avant-corps. Tête petite, le lobe frontal rétréci, les sillons frontaux convergents, le vertex bombé, le bord occipital incisé sur la ligne médiane ; yeux petits, plus courts que les tempes qui sont effacées. Antennes comme chez le précédent, sauf que les articles 6 et 7 ne sont pas transverses ; article 8 un peu plus épais que le 7. Pronotum grand, un peu plus large que long, le bord marginal simple, sans crénulations, les angles postérieurs effacés ; disque convexe, sans dépressions latérales, la ligne médiane un peu déprimée mais sans sillon. Elytres amples, convexes, un peu plus longs que larges ; trois fossettes basales, la strie discale écourtée. Abdomen long et étroit, parallèle, les tergites très convexes, les troisième et quatrième très grands. Pattes relativement longues.

Mâle. Fémurs intermédiaires renflés. Tibias antérieurs avec une forte dent au tiers proximal de la face ventrale. Sommet de l'abdomen très fortement incurvé, les sternites aplatis, le dernier asymétrique.

Femelle inconnue.

Edéage (fig. 3) de même structure que celui du *crenulatus*, mais avec la capsule basale plus allongée, la lame distale étranglée à la base, très arquée, plus atténuée, son extrémité distale avec une petite apophyse détachée du bord gauche.

3. ***Asymoplectus caudatus*** sp. n.

(fig. 5)

KASHMIR : Gulmarg, alt. 3,000 m. env., une femelle (type) (*Dr. M. Cameron*).

Long. 1,8 mm. Testacé rougeâtre, la pubescence courte et rare. Assez large. Tête grande, arrondie, le lobe frontal peu saillant, les sillons frontaux peu profonds, le vertex déprimé ; yeux de la femelle très petits, aussi longs que le tiers des tempes, celles-ci très convexes ; bord occipital échancré. Antennes longues, le pédicelle oblong et épais, le funicule grêle, les articles 4 à 8 petits et subglobuleux ; articles 9 et 10 transverses, le 11 grand, trois fois aussi long que le 10. Pronotum plus long que large, à côtés arrondis, la base un peu rétrécie, les angles postérieurs obtus ; disque régulièrement et peu convexe, sans sillon médian mais avec une très petite fossette. Elytres courts, trois fossettes basales, la strie discale très écourtée. Abdomen large et peu convexe, le troisième tergite plus grand que le deuxième, le dernier fortement acuminé. Pattes longues et grêles.

Mâle inconnu.

4. ***Asymoplectus cameroni*** sp. n.

KASHMIR : Gulmarg, alt. 3,000 m. env., une femelle (type) (*Dr. M. Cameron*).

Long. 1,8 mm. Même aspect général que chez le précédent. Tête aussi grande et déprimée, le lobe frontal peu saillant, les yeux moins petits, aussi longs que la moitié des tempes qui sont aussi convexes. Antennes semblables. Pronotum plus large que long, moins rétréci à la base, son disque sans trace de fossette médiane. Elytres et abdomen comme chez le *caudatus*, sauf que le pygidium est simple.

Mâle inconnu.

Trib. BATRISINI Raffray

Subtrib. Trabisina Jeannel

Gen. *BATOXYLA* Raffray

Batoxyla Raffray, 1897 ; type : *punctata* Raffray. Jeannel, 1949, *Mém. Mus.* **29** : 121.

Genre répandu dans l'Afrique orientale.

1. *Batoxyla fuliginosa* sp. n.

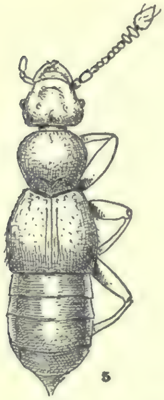
(fig. 6)

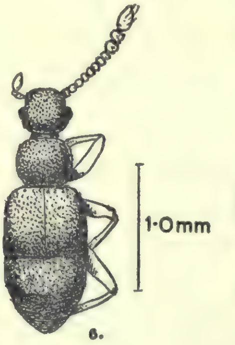
Inde. Bengale Occidental ; Darjeeling, Ghoom, une femelle (type) (*Dr. M. Cameron*).

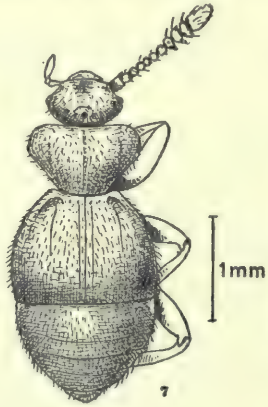
Long. 2 mm. Ailé. Brun noirâtre foncé, les pattes un peu plus claires. Allongé et convexe, uniformément couvert d'une ponctuation fine et dense, profonde, la pubescence dorée, courte et couchée. Tête arrondie, le front régulièrement convexe, sans dépressions ni sillons, le lobe frontal très large ; yeux plus courts que les tempes. Palpes petits, la massette ovale et mousse, non acuminée. Antennes longues, à massue peu tranchée, de trois articles, le scape très court, les articles du 2 au 8 un peu transverses et croissant peu à peu de grosseur, les 9 et 10 aussi longs que larges, le 11 ovale. Pronotum globuleux, sans fovéole basale. Elytres à peu près aussi longs que larges, sans strie discale, trois fossettes basales. Premier tergite abdominal plus long que le deuxième, sans carènes latérales ni carénules basales. Pattes grêles.

Mâle inconnu.

Par son aspect général, sa taille, la densité de sa ponctuation, cette espèce ressemble davantage au *Batoxyla gérardi* Jeann., qui occupe le Ruanda et le Tanganyika







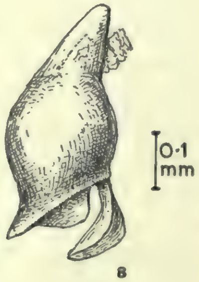


Fig. 5. Gen. *Asymoplectus* Raffr., *A. caudatus* sp. n. femelle, de Gulmarg, × 25.

Fig. 6. Gen. *Batoxyla* Raffr.; *B. fuliginosa* sp. n., femelle, de Darjeeling, × 16.

Figs. 7–8. Gen. *Hingstoniella* nov. Fig. 7. *H. lata* sp. n., mâle, de Lachen, × 14. Fig. 8. Edéage du même, face dorsale, × 75.

Territory, qu'au *Batoxylina clavalis* Jeann., décrit de Hoa-Binh, au Tonkin. C'est pourquoi, sans connaître le mâle, il faut placer l'espèce dans le genre *Batoxyla.* Si cette attribution se confirme, on aura donc encore ici, un exemple de genre africain représenté dans l'Himalaya.

Subtrib. BATRISINA Jeannel

Les genres de cette sous-tribu, extrêmement nombreuse en Afrique, ont été répartis dans cinq Divisions principales (*Ann. Mus. Congo Belge*, série in-8°, *Zool.*, 75 : 272. Les genres de l'Inde septentrionale relèvent de trois de ces Divisions et on remarquera que celles-ci ont toujours les parties latérales du disque du pronotum sillonnées.

TABLEAU DES GENRES DE L'INDE ET DU PAKISTAN

1. Elytres à trois fossettes basales 2
–. Elytres à deux fossettes basales 3
2. Côtés du disque du pronotum non sillonnés (Division I).
–. Côtés du disque du pronotum sillonnés (Division II) 5
3. Côtés du disque du pronotum non sillonnés (Division III).
–. Côtés du disque du pronotum sillonnés 4
4. Edéage à capsule basale réduite ; tubuleux ou en collier, sans pièce articulée (Division IV) 6
– Edéage de type arthromélien, à capsule basale en urne transverse, avec une pièce articulée (Division V) 10

Division II

5. Bosses latérales du pronotum sans denticule. Très large et déprimé, le pronotum près de deux fois aussi large que long, sans tubercules discaux ni fovéole basale Gen. ***Hingstoniella*** nov.
–. Bosses latérales du pronotum avec un denticule. Forme normale, convexe et déliée, le pronotum subglobuleux avec des tubercules discaux . . Gen. ***Tribasodites*** nov.

Division IV

6. Bosses latérales du pronotum avec un denticule, le pronotum non transverse. Premier tergite abdominal à bord caréné sur toute sa longueur. Edéage en collier, avec une apophyse latérale gauche . . . . Gen. ***Coryphomodes*** nov.
– Bosses latérales du pronotum sans denticule 7
7. Côtés du premier tergite abdominal carénés sur toute leur longueur . . . 8
–. Côtés du premier tergite abdominal carénés seulement à la base 9
8. Pronotum globuleux. Caractères sexuels mâles portant sur les quatre tibias postérieurs. Edéage en collier court, avec une apophyse latérale gauche Gen. ***Batrisopachys*** nov.
–. Pronotum transverse. Pas de caractères sexuels autres que la présence d'éperons aux tibias intermédiaires des mâles . . . . Gen. ***Batrisodiola*** nov.
9. Premier tergite abdominal du mâle avec une paire de coquilles constituées par des rangs de soies au devant de profondes fosses transverses. Edéage simple, lamelleux Gen. ***Madrasorites*** nov.

Division V

10. Pronotum sans sillon médian. Caractères sexuels mâles portant sur le front . 11
—. Pronotum avec un sillon médian. Front simple chez le mâle 12

11. Front du mâle régulièrement convexe et lisse. Membres courts, les fémurs épais. Antennes à article 10 simple chez le mâle. Pièce articulée de l'édéage en cornet ouvert depuis la base . . . . Gen. ***Trisiniotus*** nov.

—. Front du mâle élargi en bouclier transverse, peu convexe, ponctué, à bord antérieur échancré. Grêle, les membres longs. Pièce articulée de l'édéage tubuleuse, rectiligne . . . . Gen. ***Batristhenes*** nov.

12. Pas d'excavation sur le premier tergite abdominal du mâle. Pièce articulée de l'édéage non inclinée en dedans ni arquée 13

—. Premier tergite abdominal excavé ou sculpté chez le mâle 14

13. Très grêle, les fémurs grêles et fusiformes. Tibias intermédiaires des mâles dentés au tiers distal. Pièce articulée de l'édéage en cornet ouvert depuis la base Gen. ***Trisinarthrus*** nov.

—. Plus robuste, les fémurs courts, les tibias intermédiaires mutiques. Pièce articulée de l'édéage en forme de long flagelle recourbé en anse . Gen. ***Plocamarthrus*** nov.

14. Pièce articulée de l'édéage inclinée en dedans et arquée . . Gen. ***Batrisiella*** Raffr.

Division II

Gen. ***HINGSTONIELLA*** nov.

Type : *lata* sp. n.

Trois fossettes basales aux élytres, mais les deux fossettes internes sont atrophiées de sorte qu'il n'y a qu'une seule fossette bien visible, l'externe. D'autre part les sillons latéraux du pronotum sont peu visibles.

Aspect très insolite, rappelant un peu celui du *Ceroderma asperatum* Raffr., de Penang par l'aplatissement et l'élargissement du corps. Tête petite, arrondie, le lobe frontal très court, les yeux réduits. Palpes petits, à intermédiaire court et massette étroite, presque en bâtonnet. Antennes grêles, à massue de trois articles, peu tranchée. Pronotum très transverse, sans denticule sur les bosses latérales ; pas de fovéole basale ni de tubercules discaux. Arrière-corps large et ovale, les élytres assez longs, la strie discale présente. Premier tergite abdominal à bord caréné sur toute sa longueur ; pas de carénules basales ; deuxième tergite à bord caréné. Pattes courtes, très robustes.

Caractères sexuels mâles portant sur le front.

Edéage ovoïde, avec l'orifice basal ouvert dans l'axe de l'organe, l'orifice apical ovale, ouvert à la face ventrale d'une saillie conique terminale.

Genre d'affinité incertaine, mais paraissant bien toutefois se rattacher aux lignées indo-malaises.

Hingstoniella lata sp. n.

(figs. 7 et 8)

SIKKIM : Lachen, alt. 3,000 m. env., un mâle (type) (*R. W. G. Hingston*, iv.1924).
THIBET : Yatung, alt. 3,500 m. env., une femelle (*R. W. G. Hingston*, iv.1924).

Long. 3 mm. Très large et peu convexe, le pronotum deux fois plus large que long. Testacé rougeâtre, la pubescence dorée courte et dense. Tête très petite, transverse, enchassée dans le pronotum sans laisser voir de cou ; lobe frontal court, limité en arrière par un sillon, le front lisse, les yeux à peu près aussi longs que les tempes qui sont effacées. Antennes peu longues, le scape court, les articles 2 à 7 aussi longs que larges, le 8 plus large que le 7, un peu transverse, les 9 et 10 transverses, le 11 deux fois aussi long que le 10. Pronotum très peu convexe, finement et éparsement ponctué, les bosses latérales sans denticule, les côtés rétrécis en arrière, sans sinuosité, le disque uni, avec un fin sillon longitudinal médian. Elytres étroits à la base, la strie discale présente. Abdomen aussi long que les élytres, très atténué, le premier tergite plus long que le deuxième, ses carénules externes obliques. Pattes courtes et robustes.

Mâle avec une dépression de la partie postérieure du front, dépression au centre de laquelle se trouve un petit bouton foncé. Tibias intermédiaires et postérieurs avec de petits éperons.

Edéage : fig. 8.

Gen. ***TRIBASODITES*** nov.

Type : *antennalis* sp. n.

Trois fossettes basales aux élytres ; côtés du disque du pronotum longitudinalement sillonnés.

Forme grêle et déliée, les membres longs. Tête arrondie, à tubercules antennaires saillants, la massette palpaire elliptique, non pédonculée, les antennes grêles. Pronotum avec un denticule sur les bosses latérales. Strie discale des élytres présente. Premier tergite abdominal guère plus long que le deuxième, son bord externe caréné sur toute sa longueur, les carénules externes obliques, les carénules basales peu distantes.

Caractères sexuels portant sur le front ou la massue antennaire. Tibias intermédiaires des mâles avec un éperon très court.

Edéage allongé, tubuleux, l'orifice apical situé près du sommet de la tubulure, flanqué par une apophyse.

Ce genre est voisin de *Tribasodes* Jeann. du Japon, et d'*Ancistromus* Jeann. Ce dernier genre avait été décrit pour recevoir un grand nombre d'espèces indo-malaises à deux fossettes basales aux élytres, espèces s'apparentant aux *Coryphomus* de l'Afrique intertropicale ; mais il se trouve que l'espèce-type de ce genre *Ancistromus*, le *longulus* Jeann., du Tonkin, a été mal choisie. Elle ne présente pas le caractère essential du groupe, ayant trois fossettes basales aux elytres.

Ainsi, *Ancistromus* Jeannel (1957, *Rev. fr. d'Ent.* **24** : 13) doit-il être tenu pour un genre de la Division II, avec l'unique espèce *longulus*. Et les espèces indo-malaises à deux fossettes basales aux élytres, jusqu'ici considérées comme *Ancistromus*, seront rassemblées sous le nom nouveau de *Coryphomodes* (vois plus loin).

TABLEAU DES ESPÈCES

1. Plus grêle. Pronotum moins long que large, le disque avec une carénule médiane en avant de la fovéole basale. Antennes grêles, le dernier article échancré à la base chez le mâle (fig. 9). Long. 2,5 mm. . . . . 1. ***antennalis*** sp. n.

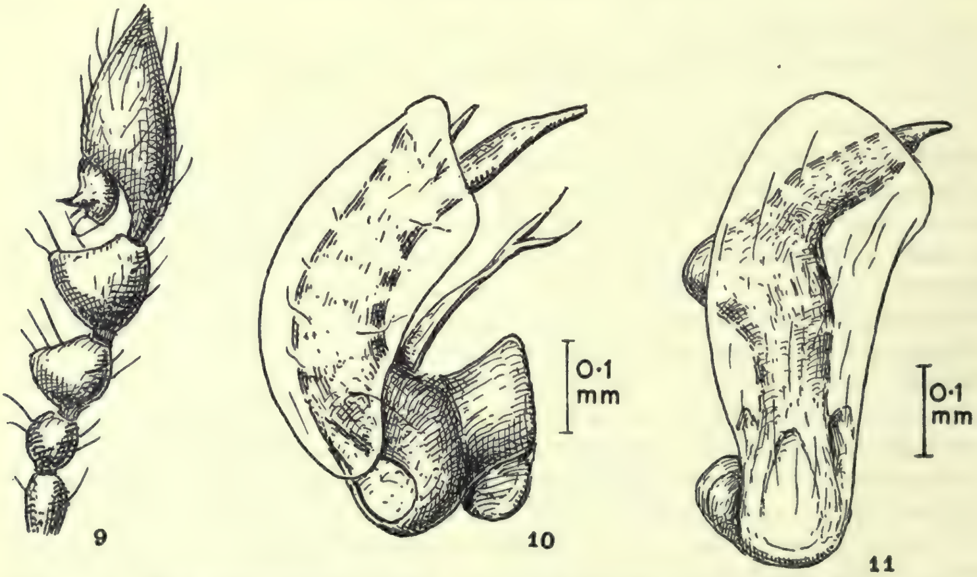
–. Plus robuste. Pronotum aussi long que large, le disque avec un profond sillon médian. Front du mâle avec un fort sillon transverse en arrière de la bosse du vertex. Long. 3 mm. . . . . 2. ***frontalis*** sp. n.

1. *Tribasodites antennalis* sp. n.

(fig. 9 à 11)

Inde. United Provinces. Kumaon : W. Almora, Sunderohunga, alt. 3,000 m. env., un mâle (type) (*H. G. Champion*). Punjab : Simla Hills, Theog, alt. 2,500 m. env., mâles et femelle (*Dr. M. Cameron*) ; Kotgarth, alt., 2,300 m. env., une dizaine d'exemplaires (*Dr. M. Cameron*).

Long. 2,5 mm. Allongé et délié. Testacé rougeâtre, la pubescence longue et irrégulière. Tête arrondie, le lobe frontal déprimé entre les tubercules antennaires, le vertex convexe, les yeux petits, plus courts que les tempes qui sont longues et convexes. Antennes grêles, les articles 2 à 7 presque deux fois aussi longs que larges, le 8 plus court que le 7, les articles de la massue bien déliés, le 11 deux fois plus long que le 10. Pronotum court, moins long que large, les bosses latérales saillantes et dentées, les côtés sinués en arrière ; disque avec deux carènes longitudinales peu saillantes, encadrant une dépression médiane où court une carénule médiane ; deux tubercules spiniformes encadrent la fovéole basale. Elytres un peu plus longs que larges. Abdomen non contracté, les tergites très convexes, le premier un peu plus long que le deuxième. Pattes très robustes.



Figs. 9–11. Gen. *Tribasodites* nov. Fig. 9. Sommet de l'antenne du mâle du *T. antennalis* sp. n., de Sunderohunga. Fig. 10. Edéage du *T. antennalis* sp. n., de Sunderohunga, face latérale, × 120. Fig. 11. Le même, face dorsale.

Mâle. Articles 9 et 10 des antennes asymétriques, le 11 très échancré à la base, avec un lobe épineux suspendu dans l'échancrure (fig. 9).

Edéage (figs. 10 et 11) tubuleux, l'orifice basal très irrégulier, la tubulure incurvée et coudée vers la gauche, l'orifice apical près du sommet, du côté droit.

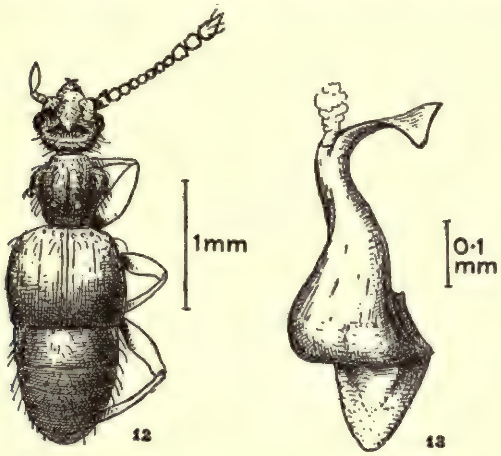
L'édéage présente une fenêtre dorsale à la base et est recouvert par une lame hyaline. Du côté ventral se trouve une expansion bifurquée qui représente sans doute les styles.

2. *Tribasodites frontalis* sp. n.

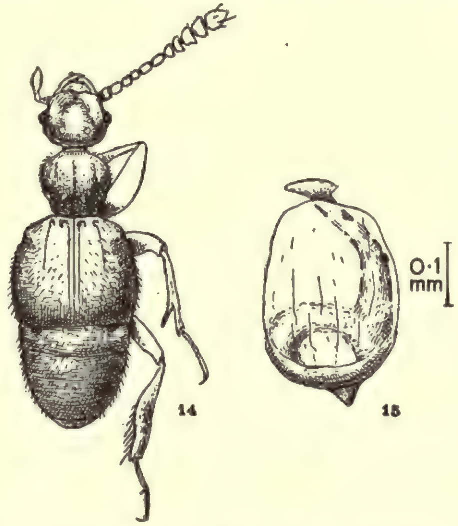
(figs. 12 et 13)

INDE. PUNJAB ORIENTAL : Simla Hills : Parhatti valley, à Kulu (*H. G. Champion*). UNITED PROVINCES. Kumaon : W. Almora div., plusieurs mâles (dont le type) et femelles (*H. G. Champion*).

Long. 3 mm. Robuste mais délié ; testacé rougeâtre, la pubescence longue et irrégulière. Tête arrondie, peu convexe, les tubercules antennaires saillants, les yeux saillants mais plus courts que les tempes. Antennes robustes, à funicule épais, les articles 3 à 8 à peine plus longs que larges, un peu moniliformes et décroissant peu à peu de grosseur, les 9 et 10 pas plus longs que larges, peu épais, le 11 ovoïde. Pronotum aussi long que large, à bosses latérales dentées, les carènes discales peu saillantes, la ligne médiane nettement sillonnée. Elytres convexes, aussi longs que larges. Abdomen non contracté, le premier tergite de peu plus long que le deuxième, les tergites très convexes. Pattes très robustes.



FIGS. 12–13. Gen. *Tribasodites* nov. Fig. 12. *T. frontalis* sp. n., mâle, de W. Almora, ×16. Fig. 13. Edéage du même, face forsale, ×85.



FIGS. 14–15. Gen. *Batrisopachys* nov. Fig. 14. *B. tibialis* sp. n., mâle, de Pindar Valley, ×16. Fig. 15. Edéage, face dorsale, ×85.

Mâle. Front avec une profonde fosse transverse en arrière de la saillie du vertex. Antennes semblables dans les deux sexes.

Edéage (fig. 13) tubuleux, épais à la base, graduellement aminci dans sa partie distale ; l'orifice basal est reporté sur la face ventrale, l'orifice apical est flanqué par une apophyse incurvée à gauche et terminée par une palette tronquée. Pas de lame hyaline recouvrant l'édéage.

Division IV

Gen. *BATRISOPACHYS* nov.

Type : *tibialis* sp. n.

Deux fossettes basales aux élytres ; les côtés du disque du pronotum longitudinalement sillonnés.

Pas de denticule sur les bosses latérales du pronotum, ni de carènes longitudinales sur le disque. Quant aux caractères sexuels des mâles, ils intéressent le quatre tibias postérieurs.

Edéage (Text-fig. 15) constitué par un collier qui porte à gauche une grande apophyse recourbée, terminée par une dilatation transverse. Tout l'organe est recouvert par une vaste lame hyaline à bord distal arrondi.

1. *Batrisopachys tibialis* sp. n.

(figs. 14 et 15)

Inde. United Provinces : Kumaon : Pindar valley, alt. 3,800 m. env., 8 exemplaires (dont le type) ; Sunderohunga valley, W. Almora div., alt. 4,000 m. env., 14 exemplaires (*H. G. Champion*).

Long. 3 mm. Délié mais très robuste. Testacé rougeâtre luisant, la pubescence courte et fine. Tête médiocre, arrondie, la pubescence courte et fine, le lobe frontal déprimé entre les tubercules antennaires, le front lisse, les carènes latérales du front obtuses, le cou étroit ; yeux petits, bien plus courts que les côtés des tempes qui sont convexes, bombées. Palpes petits, à massette étroite. Antennes grêles, les articles 2 à 6 plus longs que larges, les 7 et 8 un peu transverses, les 9 et 10 transverses et plus épais, le 11 deux fois aussi long que le 10. Pronotum aussi long que large, subglobuleux, le disque avec un sillon médian et deux tubercules encadrant la fovéole basale ; pas trace de carènes longitudinales. Elytres amples et convexes, la strie discale présente. Abdomen peu atténué, le premier tergite de peu plus long que le deuxième, avec deux profondes fossettes sur le bord basal, les carénules basales distantes de moins du quart de la largeur du disque. Pattes longues.

Mâle. Angles huméraux des élytres saillants et carénés. Tibias intermédaires avec une longue dent allongée oblique, au tiers distal du bord ventral. Tibias postérieurs élargis dans leurs deux tiers distaux qui sont aplatis, un peu cambrés, pubescents en dessous.

Edéage (fig. 15) court, l'apophyse coudée en dedans vers le milieu de sa longueur, puis amincie et terminée par une dilatation transverse.

Gen. *BATRISODIOLA* nov.

Type : *transversicollis* sp. n.

Deux fossettes basales aux élytres ; les côtés du disque du pronotum avec des sillons longitudinaux.

Taille moyenne. Yeux petits. Pronotum transverse, sans denticule sur les bosses latérales. Côtés du premier tergite abdominal carénés sur toute sa longueur.

Pas d'autres caractères sexuels que la présence d'éperons très courts aux tibias intermédiaires chez les mâles.

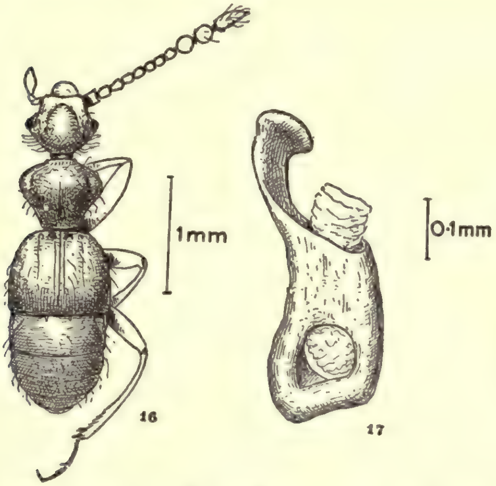
Edéage allongé, tubuleux, avec une forte apophyse du côté droit.

1. ***Batrisodiola transversicollis*** sp. n.

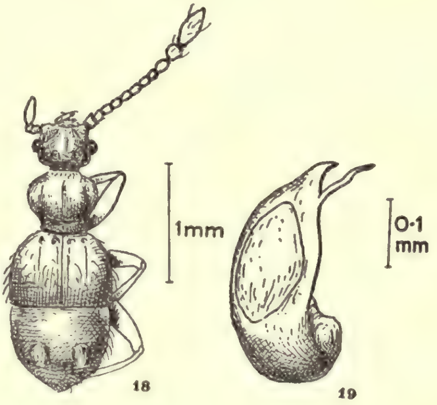
(figs. 16 et 17)

INDE. BENGALE OCCIDENTAL : Darjeeling, alt. 2,500 m. env., 2 mâles (dont le type) (*R. W. G. Hingston*, iii.1924).

Long. 2,5 mm. Allongé et délié, mais robuste ; brun de poix luisant, les pattes un peu rougeâtres. Tête arrondie, le lobe frontal anguleusement déprimé entre les tubercules antennaires, les yeux petits, pas plus longs que le quart des tempes, qui sont régulièrement convexes. Antennes robustes, peu longues, à massue peu tranchée, le scape court, les articles 2 à 7 un peu plus longs que larges, le 8 plus court et plus étroit que le 7, les 9 et 10 en toupies, aussi longs que larges, le 11 pas plus large que le 10 mais deux fois plus long et acuminé. Pronotum presque aussi long que large, à bosses latérales très saillantes, arrondies, les côtés sinués en arrière, la base très étroite ; disque régulièrement bombé, sans carènes discales, les deux tubercules peu saillants. Elytres aussi longs que larges, bombés, la strie discale superficielle. Abdomen peu contracté, les carénules basales du premier tergite écartées du quart de la largeur du disque. Pattes très robustes.



FIGS. 16–17. Gen. *Batrisodiola* nov. Fig. 16. *B. transversicollis* sp. n., mâle, de Darjeeling, × 15. Fig. 17. Edéage, face dorsale, × 80.



FIGS. 18–19. Gen. *Madrasorites* nov. Fig. 18. *M. bifasciculatus* sp. n., mâle, de Madura, × 15. Fig. 19. Edéage, face dorsale, × 80.

Mâles avec un éperon très court aux quatre tibias postérieurs.

Edéage (fig. 17) grand, très sclérifié, la capsule basale représentée par une gaîne chitineuse avec orifice basal ventral et une fenêtre dorsale ; l'orifice apical au sommet de la gaîne et flanqué par une apophyse du bord droit, comprimée et terminée par un épaississement transverse.

Gen. ***MADRASORITES*** nov.

Genre de la Division IV, les élytres ayant deux fossettes basales et le pronotum des sillons latéraux. Yeux situés sur les côtés du front. Mais dans la Division IV, ce genre est insolite, présentant des caractères sexuels sur le premier tergite abdominal, analogues à ceux des genres de la Division V.

Tête grande, à tubercules antennaires très saillants, les palpes maxillaires simples, à massette elliptique, non pédonculée. Pronotum avec un sillon médian. Premier tergite abdominal très grand, à bord caréné seulement dans sa partie antérieure ; pas de carénules basales.

Mâle. Le premier tergite abdominal présente sur sa partie postérieure une grande fosse transverse très profonde et, en avant de la fosse, le disque porte deux sortes de coquilles constituées par des rangs serrés de soies incurvées.

Edéage (fig. 19) simple, arqué, terminé en pointe, avec une apophyse latérale en lanière.

1. ***Madrasorites bifasciculatus*** sp. n.

(figs. 18 et 19)

INDE. MADRAS : Madura, 3 mâles (dont le type), sous le nom inédit de *Batrisocenus bifasciculatus*, dans la collection Raffray.

Long. 2,5 mm. Peu allongé. Testacé rougeâtre luisant, la pubescence longue. Tête grande, le front subcarré, le lobe frontal large et déprimé, le vertex longitudinalement sillonné ; yeux aussi longs que les tempes, qui sont saillantes et très convexes. Antennes longues, les articles du funicule plus longs que larges. Pronotum à bosses latérales saillantes, arrondies, sans denticule, le disque lisse, avec un sillon médian, la fovéole basale en forme de sillon transverse ; pas de tubercules. Elytres courts, à épaules effacées dans les deux sexes. Premier tergite abdominal très grand, les carénules externes très courtes. Pattes robustes.

Caractères sexuels et édéage : figs. 18 et 19.

Femelle inconnue.

Gen. ***CORYPHOMODES*** nov.

Type : *cristatus* sp. n.

Genre de la Division IV, mais avec un denticule sur les bosses latérales.

Dans ce genre entrent quelques espèces nouvelles de l'Inde et en outre toutes celles que j'avais placées dans le genre *Ancistromus* (1957, *Rev. fr. d'Ent.* **24** : 14), soit du Tonkin, soit du Japon. Comme il a été dit ci-dessus, le genre *Ancistromus* ne doit retenir que le seul *A. longulus* Jeann. et appartient à la Division II.

Espèces de taille moyenne, grêles et déliées. Tête á carènes latérales saillantes, le front avec deux grandes fossettes ocellaires. Palpes petits, la massette elliptique et peu renflée. Pronotum avec des carènes longitudinales saillantes en avant des tubercules discaux qui sont aigus ; ligne médiane sillonnée. Elytres à deux fossettes basales, la strie discale présente. Premier tergite abdominal un peu plus long que le deuxième, son bord caréné sur toute sa longueur. Pattes longues.

Généralement pas de caractères sexuels, sauf la présence d'éperons aux tibias postérieurs.

La plupart des espèces ne sont connues que par des femelles. Toutefois, chez deux espèces de l'Inde, l'édéage se montre formé par un anneau basal portant une grande apophyse ventrale et recouvert par une lame hyaline dorsale.

TABLEAU DES ESPÈCES

1. Tête transverse, losangique, les yeux assez grands, saillants en dehors, les tempes très obliques 2

–. Tête arrondie, les yeux petits, les tempes longues et arrondies 5

2. Elytres lisses. Carénules basales du premier tergite abdominal très rapprochées, distantes du sixième de la largeur du disque 3

–. Elytres ponctués. Carénules moins rapprochées, distantes du cinquième de la largeur du disque. 4

3. Plus grand. Tête plus transverse, les tempes presque planes. Pronotum un peu plus long que large. Mâle inconnu. Long. 2,5 mm. . . . 1. ***temporalis*** sp. n.

–. Plus petit. Tête plus étroite, les tempes convexes quoique effacées. Pronotum plus court. Mâle inconnu. Long. 2,2 mm. (Tonkin) . . . . (***coomani*** Jeann.)

4. Bosses latérales du pronotum saillantes et tronquées, leur denticule très saillant. Elytres à ponctuation superficielle. Mâle inconnu. Long. 2,5 mm. (Japon) (***spinicollis*** Sharp)

–. Bosses latérales du pronotum plus arrondies, le denticule petit. Ponctuation des élytres forte. Mâle inconnu. Long. 3 mm. (Japon) . . . (***brevispina*** Jeann.)

5. Carènes discales du pronotum saillantes, tranchantes, le tégument vaguement ponctué entre les carènes, le denticule latéral petit. Carénules basales du premier tergite espacées du quart de la largeur du disque 6

–. Carènes discales du pronotum effacées, le tégument lisse ; denticule latéral extrêmement petit. Carénules basales du premier tergite espacées du tiers de la largeur du disque 7

6. Yeux aussi longs que le tiers des tempes. Elytres plus longs que larges, étroits aux épaules, élargis en arrière, peu convexes. Long. 2,5 mm. . . 2. ***cristatus*** sp. n.

–. Yeux pas plus longs que le quart des tempes. Elytres aussi longs que larges, convexes, larges aux épaules. Long. 2,5 mm. . . . . . . 3. ***humeralis*** sp. n.

7. Côtés du premier tergite abdominal anguleusement élargis. Carènes discales du pronotum peu saillantes. Mâle avec des caractères sexuels sur les tibias postérieurs. Long. 3 mm. . . . . 4. ***calcaratus*** sp. n.

Ce genre doit être nombreux. Il semble que beaucoup d'espèces rangées par Raffray dans les groupes XXIII à XXXIV de son grand genre *Batrisocenus* en feront partie, lorsqu'elles auront été révisées.

1. ***Coryphomodes temporalis*** sp. n.

INDE. MADRAS : Nilgiri Hills, alt. 1,000 m. env., une femelle (type) (*H. L. Andrewes*).

Long. 2,5 mm. Testacé rougeâtre luisant, entièrement lisse. Tête transverse, losangique, les yeux très saillants, aussi longs que la moitiè de la tempe, qui est très oblique et à peine convexe. Lobe frontal étroit, l'épistome saillant ; bosse du vertex haute, rétrécie entre les fossettes ocellaires. Antennes robustes, à massue peu épaisse, les articles 2 à 7 à peine plus longs que larges, les 8 à 10 aussi longs que larges. Pronotum aussi long que large, lisse, les bosses latérales arrondies en avant, le disque avec les carènes longitudinales formant un tubercule au milieu de leur longueur, le sillon médian étendu seulement sur la moitié postérieure. Elytres courts et bombés, lisses, les épaules saillantes et carénées. Tergites abdominaux convexes et parallèles. Pattes longues et robustes.

Mâle inconnu.

2. *Coryphomodes cristatus* sp. n.

(figs. 20 et 21)

INDE. UNITED PROVINCES. Kumaon : Gori valley, alt. 2,500 m. env., un mâle (type) (*H. G. Champion*).

Long. 2,5 mm. Brun rougeâtre, les antennes et les pattes rougeâtres, la pubescence longue. Tête arrondie, déprimée, le front grossièrement ponctué, les yeux à peu près aussi longs que le tiers des tempes qui sont longues et convexes. Antennes assez grêles, les articles 5 et 6 deux fois aussi longs que larges, la massue peu renflée. Pronotum aussi long que large, les bosses latérales arrondies et peu saillantes, les carènes discales tranchantes, le tégument ponctué entre les carènes, la ligne médiane sillonnée sur toute la longueur. Elytres longs et peu convexes, étroits aux épaules qui sont carénées, le disque avec une carène en dedans des stries discales. Abdomen large, un peu ovale, les tergites convexes. Pattes relativement grêles.

Pas de caractères sexuels.

Edéage (fig. 21) à capsule basale annulaire, l'apophyse longue, brusquement coudée à gauche au sommet. La lame hyaline dorsale atteint presque le sommet de l'apophyse.

3. *Coryphomodes humeralis* sp. n.

INDE. PUNJAB ORIENTAL. Simla Hills : Fagu, alt. 2,800 m. env., une femelle (type) (*Dr. M. Cameron*).

Long. 2,5 mm. Voisin du précédent mais plus grêle, plus étroit. Tête semblable sauf que le front est lisse, sans ponctuation, et les yeux plus petits, pas plus longs que le quart de la longueur des tempes. Antennes semblables. Pronotum de même forme, mais avec les carènes discales moins tranchantes et le tégument lisse. Elytres bien plus courts et surtout plus convexes, avec les épaules plus larges, plus saillantes et plus carénées ; pas de carène longitudinale sur le disque. Abdomen plus étroit, plus parallèle. Pattes aussi grêles.

Mâle inconnu.

Cette femelle ne peut pas être rapportée à l'espèce précédente, d'abord à cause de l'absence de ponctuation, puis surtout à cause de la forme des élytres. La saillie des épaules de cette femelle indique que le mâle les aura au moins aussi saillantes et sera ainsi bien différent du mâle du *cristatus*.

4. ***Coryphomodes calcaratus*** sp. n.

(fig. 22)

KASHMIR : Gulmarg, mâle (type) et femelle (*Dr. M. Cameron*).

Long. 2,8 à 3 mm. Grêle et allongé. Testacé rougeâtre, lisse, la pubescence longue et irrégulière. Tête arrondie, déprimée, les yeux bien plus courts que les tempes qui sont longues et convexes. Antennes grêles, avec les articles 6 et 7 deux fois aussi longs que larges, les articles de la massue peu renflés et bien déliés. Pronotum petit, un peu plus long que large, les bosses latérales très peu saillantes, le denticule extrêmement petit, surtout chez la femelle ; carènes discales effacées, le sillon médian peu profond, s'effaçant en avant. Elytres un peu plus longs que larges, les épaules saillantes dans les deux sexes ; pas de carènes discales. Abdomen étroit et parallèle, les tergites convexes, les carénules basales du premier tergite espacées du tiers de la largeur du disque. Pattes longues et grêles.

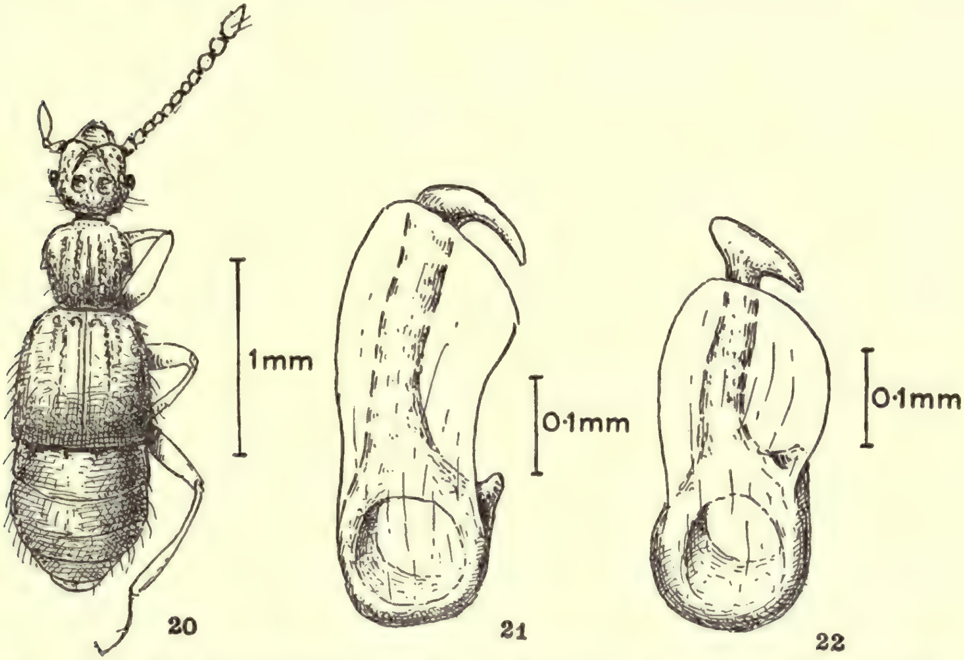


FIG. 20–22. Gen. *Coryphomodes* nov. Fig. 20. *C. cristatus*, sp. n., mâle, de Gori Valley, ×25. Fig. 21. Edéage du même, ×130. Fig. 22. Edéage du *C. calcaratus* sp. n., de Gulmarg, ×130.

Mâle. Yeux aussi longs que le tiers de la longueur des tempes. Côtés du premier tergite abdominal anguleusement dilatés. Tibias intermédiaires avec une forte dent distale crochue ; tibias postérieurs étranglés et coudés au quart distal, la partie coudée épaisse avec une brosse et un éperon.

Femelle. Yeux plus petits, aussi longs que le quart de la longueur de la tempe. Côtés du premier tergite abdominal rectilignes. Tibias simples.

Edéage (fig. 22) semblable à celui du *cristatus*, sauf que l'apophyse se termine par une dilatation transverse en forme de T, la branche gauche correspondant au crochet du *cristatus*.

Division V

Gen. ***TRISINIOTUS*** nov.

Type : *nodicornis* sp. n.

Petite taille. Court et trapu. Tête arrondie, non déliée, le cou épais. Palpes normaux. Antennes courtes. Pronotum à bosses latérales peu saillantes, sans denticule, le disque très bombé, lisse, sans sillon médian, la fovéole basale en forme de sillon transverse ; pas de tubercules discaux. Elytres à deux fossettes basales. Premier tergite abdominal très grand, peu convexe, ses côtés non carénés, mais avec seulement un petit pli à la base ; carénules basales écartées de plus du tiers de la largeur du tergite. Pattes courtes.

Mâle. Front bombé et lisse. Antennes à article 10 fortement renflé. Tibias intermédiaires avec un petit éperon.

Femelle inconnue

Edéage (fig. 24) à piéce articulée non rabattue en travers de la capsule, et en forme de cornet ouvert depuis la base.

1. ***Trisiniotus nodicornis*** sp. n.

(figs. 23 et 24)

Inde. United Provinces. Kumaon : Dehra Dun, 3 mâles (dont le type) (*Dr. M. Cameron*).

Long. 1,5 mm. Testacé rougeâtre, lisse et luisant, la pubescence courte et rare. Tête petite, enchâssée dans le pronotum, le cou caché mais large. Front du mâle bombé, lisse, sans sillons frontaux, les yeux très grands, plus longs que les tempes qui sont obliques et effacées. Antennes courtes. Pronotum plus long que large et plus étroit que la tête. Elytres longs et peu convexes.

Edéage (fig. 24) à capsule basale très petite, la lame distale longue et lancéolée, pointue, la pièce articulée en cornet très régulier.

Gen. ***TRISINARTHRUS*** nov.

Type : *depressifrons* sp. n.

Petite taille. Grêle et délié, les pattes longues. Tête bien dégagée, le cou étroit, le front déprimé. Palpes normaux. Antennes longues. Pronotum à bosses latérales saillantes, le disque avec un sillon médian, la fovéole basale en forme de sillon transverse ; pas de tubercules discaux. Elytres courts et bombés, deux fossettes basales. Premier tergite abdominal très grand, large, à côtés non carénés mais avec un petit pli à la base ; carénules basales écartées du tiers de la largeur du tergite. Pattes très longues et grêles.

Les caractères sexuels portent sur la forme du front.

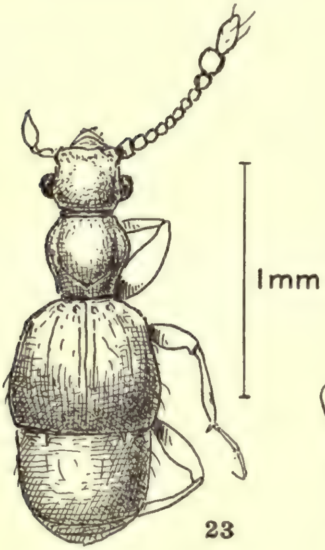
Edéage de même type que celui du *Trisiniotus*.

1. ***Trisinarthrus depressifrons*** sp. n.

(fig. 25)

INDE. BENGALE OCCIDENTAL : Darjeeling, Ghoom, mâles (dont le type) et femelle dans la mousse, au bord des eaux (*Dr. M. Cameron*).

Long. 2 mm. Brun rougeâtre, lisse et luisant, la pubescence assez longue et rare. Tête grande, arrondie et déprimée, le lobe frontal large, le vertex aplati, les yeux plus courts que les tempes qui sont saillantes et convexes. Antennes longues mais robustes, tous les articles du 2 au 11 plus longs que larges. Pronotum aussi long que large, aussi large que la tête, convexe, les bosses latérales saillantes et arrondies, la plus grande largeur à peu près à leur milieu ; disque très bombé, sillonné sur la ligne médiane, les sillons latéraux faibles. Elytres courts et bombés, très larges, à épaules effacées dans les deux sexes.



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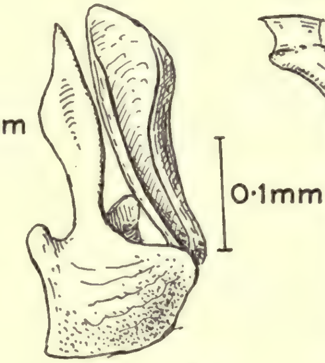

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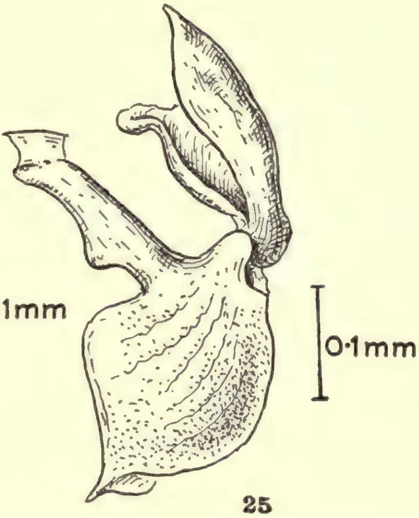

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FIGS. 23–24. Gen. *Trisiniotus* nov. Fig. 23. *T. nodicornis*, sp. n., mâle, de Dehra Dun. ×31. Fig. 24. Edéage du même, face dorsale, ×150.

FIG. 25. Gen. *Trisinarthrus* nov.; édéage du *T. depressifrons*, sp. n., de Darjeeling, face dorsale, ×150.

Mâle. Front très aplati et lisse, les tubercules antennaires saillants et relevés. Tibias intermédiaires avec un petit éperon. Pattes plus longues, la partie basale grêle des fémurs très allongée.

Femelle. Front un peu convexe, sa partie antérieure en forme de bandeau plat et ponctué, à bord antérieur anguleux. Pattes moins longues.

Edéage (fig. 25) à lame distale oblique, non acuminée, la pièce articulée très largement ouverte.

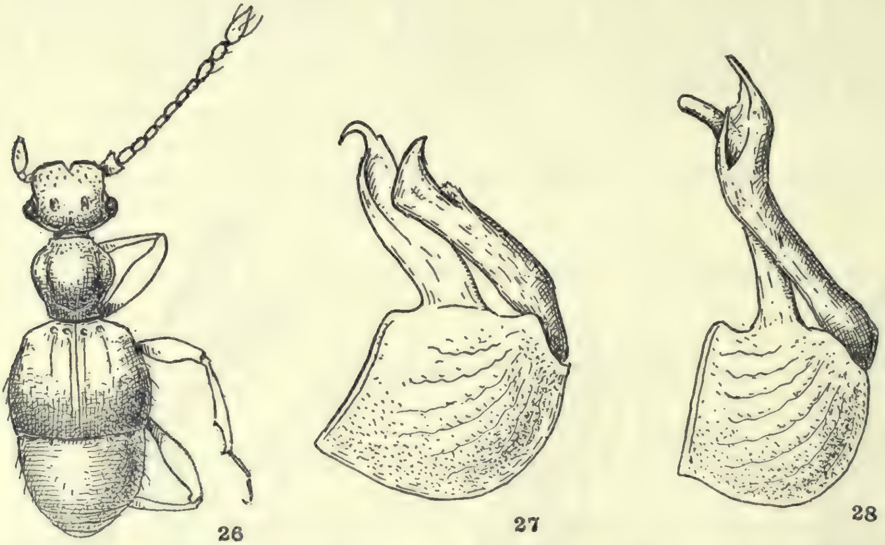
Gen. ***BATRISTHENES*** nov.

Type : *clypeatus* sp. n.

Petite taille : très grêle. Yeux placés très en arrière, les tempes étant de ce fait très effacées. Bien différent des genres voisins par la forme du front des mâles, en bouclier transverse et ponctué.

Edéage du type arthromélien, la capsule basale transverse, grande, ouverte à droite, la pièce articulée insérée à gauche, non arquée et tubuleuse.

Les deux espèces dont la description va suivre vivent ensemble et sont presque impossibles à distinguer extérieurement. Mais leurs édéages sont très différents.



Figs. 26–28. Gen. *Batristhenes* nov. Fig. 26. *B. clypeatus* sp. n., mâle, de Haldwani distr., ×32. Fig. 27. Edéage du même, face dorsale, ×160. Fig. 28, Edéage du *B. clypealis* sp. n., de Haldwani distr., ×160.

1. ***Batristhenes clypeatus*** sp. n.

(figs. 26 et 27)

Inde. United Provinces. Kumaon : Haldwani distr., 7 mâles (dont le type) et une femelle (*H. G. Champion*).

Long. 1,5 à 1,6 mm. Testacé rougeâtre luisant, presque glabre, la pubescence courte, très fine et rare. Tête déliée, les antennes longues et grêles, à massue peu renflée. Pronotum un peu plus long que large, lisse, le disque très bombé, sans sillon médian. Elytres peu convexes. Premier tergite abdominal très grand, sans carénules basales, les côtés non carénés. Pattes longues et grêles, les fémurs fusiformes.

Mâle. Tête grande, à front élargi en bouclier convexe et ponctué, le bord antérieur échancré. Elytres plus longs, à épaules un peu plus saillantes et à peine carénées. Tibias intermédiaires avec une dent au tiers distal et un petit éperon.

Femelle. Tête plus petite, à front normal. Elytres courts, à épaules effacées. Tibias inermes.

Edéage (fig. 27) à capsule basale relativement grande, la lame distale peu sclérifiée, large et excavée dans sa partie distale, puis terminée par un crochet ; pièce articulée épaisse, rectiligne, à sommet obliquement tronqué et avec un denticule dorsal au niveau de l'orifice du sac interne, situé à la face interne.

2. *Batristhenes clypealis* sp. n.

(fig. 28)

INDE. UNITED PROVINCES. Kumaon : Haldwani distr., un mâle (type) (*H. G. Champion*).

Long. 1,6 mm. Semblable au précedent, mais avec un édéage bien différent.

Edéage (fig. 28) à capsule basale plus petite, moins profonde, la lame distale étroite, à borde parallèles, un peu incurvée au sommet et mousse. Pièce articulée plus grande que chez le *clypeatus*, rectiligne puis épaissie au sommet, où l'orifice apical s'ouvre en biseau sur la face externe.

Gen. *PLOCAMARTHRUS* nov.

Type : *championi* sp. n.

Espèces robustes à pronotum sillonné sur la ligne médiane et côtés du premier tergite abdominal non carénés. Pas de caractères sexuels sur le premier tergite ; tibias intermédiaires des mâles mutiques.

Edéage à capsule basale en forme d'urne transverse, ouverte à droite, munie d'une lame distale allongée et d'une pièce articulée insérée au fond de l'urne. Cette pièce articulée est ankylosée, immobile, longue et grêle, avec l'extremité recourbée en anse.

TABLEAU DES ESPÈCES

1. Yeux placés très en arrière sur les côtés du front, avec les tempes effacés mais un peu convexes 2

–. Yeux placés plus en avant sur les côtés du front, les tempes saillantes en arrière des yeux 3

2. Plus grêle. Antennes du mâle avec les articles 7 à 10 asymétriques, le 9 plus renflé que les autres. Long. 2 à 2,2 mm. . . . . . . 1. ***championi*** sp. n.

–. Plus robuste. Antennes du mâle simples. Long. 2,5 mm. . . 2. ***cameroni*** sp. n.

3. Tête très déprimée, aplatie, les tempes saillantes en dehors, en arrière des yeux, ceux-ci plus petits. Long. 2,6 mm. . . . . . . 3. ***planiceps*** sp. n.

–. Tête non aplatie, les tempes très arrondies. Yeux plus grands. Arrière-corps plus large. Long. 2,6 mm. . . . . 4. ***abdominalis*** sp. n.

1. *Plocamarthrus championi* sp. n.

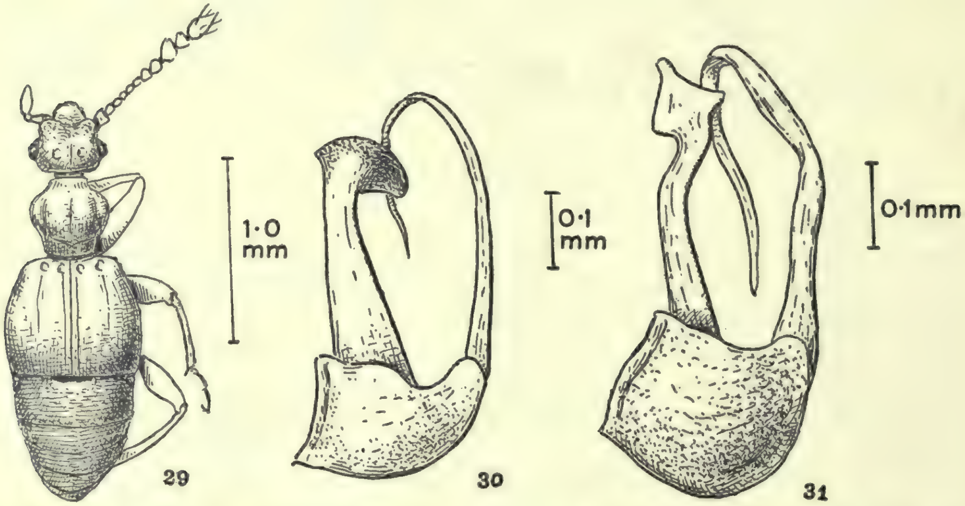
(figs. 29 et 30)

INDE. PUNJAB ORIENTAL. Simla Hills : Gahan, Theog, Kotgarth, alt. 2,500 m. env., nombreux exemplaires (*Dr. M. Cameron*). UNITED PROVINCES. Kumaon :

Chakrata div., Deoban, Dodoro Khud (type), Khedar Khud, alt. 2,500 m. env. (*Dr. M. Cameron*) ; Haldwani distr. (*H. G. Champion*) ; W. Almora : Sunderohunga (*H. G. Champion*) ; Mussoorie, Ringal Gad (*Dr. M. Cameron*).

Long. 2 à 2,2 mm. Testacé rougeâtre, la pubescence courte et dense. Allongé et délié, grêle, les téguments lisses. Tête médiocre, le front convexe, les tubercules antennaires saillants, le vertex carénulé, le yeux un peu moins longs que les tempes qui sont convexes. Antennes courtes. Pronotum aussi long que large, les bosses latérales arrondies, les côtés sinués en arrière. Elytres à strie discale bien visible. Abdomen atténué. Premier tergite bien plus long que le deuxième, sans carénules basales. Pattes longues.

Mâle. Elytres plus longs, à épaules carénées, anguleuses. Antennes avec les articles 7 à 10 asymétriques, épais et saillants en dedans, l'article 9 bien plus grand et plus saillant que les autres (fig. 29).



FIGS. 29–31. Gen. *Plocamarthrus* nov. Fig. 29. *P. championi* sp. n., mâle, de Sunderohunga, ×24. Fig. 30. Edéage du même, ×95. Fig. 31. Edéage du *P. cameroni* sp. n., de Kotgarth, ×100

Femelle. Antennes simples. Elytres courts. Premier tergite abdominal avec une profonde dépression du milieu du bord basal.

Edéage (fig. 30) à capsule basale petite, la lame distale grande, large à la base, atténuée dans sa partie distale et terminée par une dilatation transverse infléchie et colorée ; pièce articulée longue et grêle.

2. ***Plocamarthrus cameroni*** sp. n.

(fig. 31)

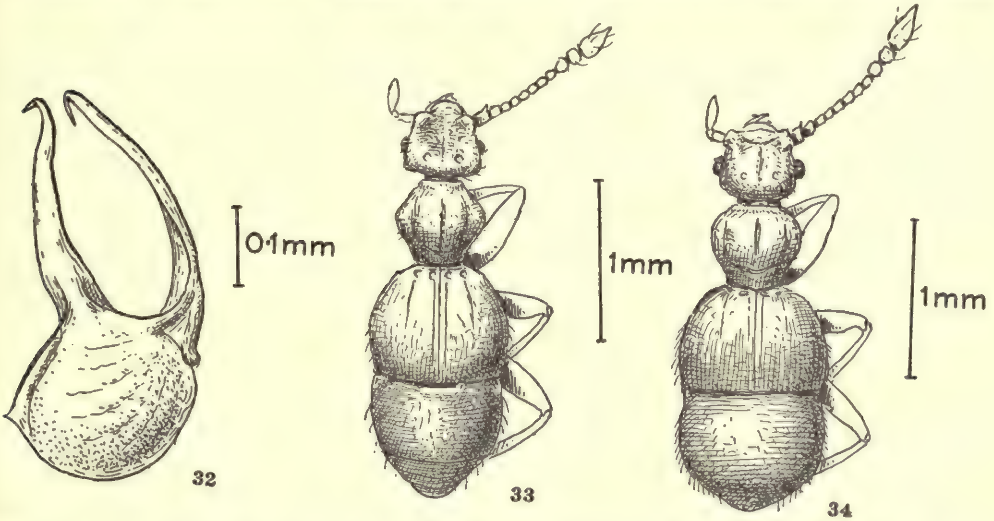
INDE. PUNJAB ORIENTAL : Simla Hills : Kotgarth, 2,500 m. env. (type) (*Dr. M. Cameron*) ; Seraj (*H. G. Champion*) ; Parhatti valley à Kulu (*H. G. Champion*).

UNITED PROVINCES. Kumaon: Chakrata div.: Manjgaon et Chatti Khud, alt. 2,500 m. env. (*Dr. M. Cameron*).

Long. 2,5 mm. Testacé rougeâtre, la pubescence courte et dense. Aspect du précédent, mais plus grand et plus robuste. Même forme de la tête, avec les yeux plus grands, plus longs que les tempes et celles-ci plus effacées, à peine convexes. Antennes courtes. Pronotum et élytres comme chez le *championi*. Premier tergite abdominal long, sans carénules basales. Pattes longues.

Mâle. Antennes simples. Elytres longs, à épaules saillantes et carénées. Premier tergite abdominal avec un petit pli longitudinal sur le milieu du bord postérieur.

Femelle. Elytres courts. Premier tergite abdominal sans dépression du bord basal.



FIGS. 32–34. Gen. *Plocamarthrus* nov. Fig. 32. Edéage du *P. planiceps* sp. n., de Darjeeling, ×110. Fig. 33. *P. planiceps* sp. n., mâle, de Darjeeling, ×20. Fig. 34, *P. abdominalis* sp. n., femelle, de Gulmarg., ×20.

Edéage (fig. 31) à capsule basale plus grande et plus renflée que chez le *championi*, la lame distale plus grêle, plus longue et terminée par une palette lancéolée; pièce articulée plus épaisse et plus longue.

3. ***Plocamarthrus planiceps*** sp. n.

(figs. 32 et 33)

INDE. BENGALE OCCIDENTAL: Darjeeling, Ghoom, 2 mâles (dont le type) (*Dr. M. Cameron*).

Long. 2,6 mm. Brun rougeâtre foncé, la pubescence courte et dense. Robuste. Tête du mâle grande et déprimée, avec les tubercules antennaires très saillants, les yeux plus longs que les côtés des tempes, qui sont saillantes en dehors, en arrière des yeux, le vertex aplati. Antennes assez grêles. Pronotum aussi long que large, à bosses latérales saillantes, un peu anguleuses, leur sommet à peu près au milieu de la longueur du pronotum ; disque convexe, sillonné. Elytres à épaules effacées chez le mâle. Premier tergite abdominal très grand, peu convexe, sans carénules basales. Pattes robustes.

Mâle. Pas de caractères sexuels sur les antennes ni sur l'abdomen, mais l'aplatissement du front est sans doute particulier au mâle.

Edéage (fig. 32) à capsule basale renflée et lame distale représentée par une tige peu à peu amincie et terminée par un crochet. Pièce articulée grêle, incurvée, à anse distale extrêmement courte.

4. ***Plocamarthrus abdominalis*** sp. n.

(fig. 34)

KASHMIR : Gulmarg, une femelle (type) (*Dr. M. Cameron*).

Long. 2,6 mm. Brun rougeâtre foncé, la pubescence courte et dense. Epais, très robuste. Tête arrondie, grande et peu convexe, les tubercules antennaires très saillants, le lobe frontal avec un sillon transverse en V ouvert en avant, son angle recevant l'extrémité d'une carénule médiane du vertex ; yeux saillants, aussi longs que les côtés des tempes qui sont très convexes. Antennes assez grêles, comme chez le *planiceps*. Pronotum aussi long que large, à bosses latérales plus arrondies que chez le *planiceps*, la sinuosité postérieure plus longue. Elytres très bombés, à épaules effacées. Abdomen très large, le premier tergite très grand, à côtés parallèles. Pattes robustes.

Mâle inconnu.

Gen. ***Batrisiella*** Raffray

Batrisiella Raffray, 1904, *Ann. Soc. ent. Fr.* **73** : 11 ; type : *caviventris* Raffray (Ceylan)—*Arthromelinus* Jeannel, 1952, *Rev. fr. d'Ent.* **19** : 98 ; type : *angulatus* Jeann. (Sumatra.).

Il n'est pas doutex que le nom de genre *Batrisiella* Raffr. doit remplacer *Arthromelinus*. Le type du *Batrisiella caviventris* Raffr., de Ceylan, est perdu ; mais des exemplaires recueillis par G. Lewis, appartenant sans aucune doute à cette espéce, montrent qu'il n'existe aucune diffèrence dans l'écartement des hanches postèrieures qui puisse justifier la sèparation de deux genres.

L'édéage des espèces de l'Inde septentrionale est d'un type assez constant, avec l'orifice basal de la capsule ouvert à la face ventrale, la pièce articulée toujours épaisse et peu arquée. Par contre, le *protervus*, des monts Nilgiri, a l'édéage pourvu d'une pièce articulée très grêle et très arquée, semblable à celle des espèces malaises.

TABLEAU DES ESPÈCES DE L'INDE ET DU PAKISTAN

1. Caractères sexuels des mâles portant seulement sur le premier tergite abdominal. (Espèces de l'Inde septentrionale) 2

–. Caractères sexuels des mâles portant sur les deux premiers tergites. (Espèces de l'Inde péninsulaire) 3

2. Antennes courtes, à articles moyens à peine plus longs que larges. Premier tergite des mâles avec une vaste excavation circulaire. (Groupe du *foveola*) 4

–. Antennes longues, les articles moyens deux fois aussi longs que larges. Premier tergite des mâles avec une fosse transverse sur la moitié postérieure. (Groupe du *tibialis*). 6

3. Pièce articulée de l'édéage épaisse. (Groupe du *campbelli*) 7

–. Pièce articulée de l'édéage très grêle, très longue et très arquée. (Groupe du *protervus*). 8

Groupe du *foveola*

4. Pronotum plus long que large, les bosses latérales peu saillantes. Fosse du premier tergite de mâle n'occupant que la moitié postérieure (fig. 39). Long. 1,8 mm. 1. ***foveola*** sp. n.

–. Pronotum pas plus long que large, les bosses latérales plus saillantes. Fosse du premier tergite occupant toute la face dorsale 5

5. Premier tergite du mâle à parties latérales lisses (Text-fig. 38). Long. 1,8 mm. 2. ***hastata*** sp. n.

–. Premier tergite du mâle avec une plage ponctuée sur les parties latérales (Text-fig. 40). Long. 1,8 mm. . . . . 3. ***biharensis*** sp. n.

Groupe du *tibialis*

6. Tibias antérieurs du mâle renflés au sommet, avec une profonde échancrure dorsale (Text-fig. 44). Long. 2,5 mm. . . . . 4. ***tibialis*** sp. n.

Groupe du *campbelli*

7. Grande taille, les membres longs, les élytres du mâle étroits en avant, à épaules très effacées. Long. 2,2 mm. . . . . 5. ***campbelli*** sp. n..

Groupe du *proterva*

8. Membres relativement courts, les élytres du mâle à épaules saillantes et dentées. Long. 2 mm. . . . . 6. ***proterva*** Raffr.

Groupe du foveola

1. ***Batrisiella foveola*** sp. n.

(figs. 39 et 42)

INDE. UNITED PROVINCES. Bareilly, un mâle (type) (*H. G. Champion*). PAKISTAN. PAKISTAN ORIENTAL : Sarda, 2 mâles (*F. W. C.*).

Long. 1,8 mm. Ailé. Testacé rougeâtre lisse et luisant, la pubescence très rare. Antennes peu longues, les articles 5 et 6 seulement un peu plus longs que larges. Pronotum plus long que large, ses bosses latérales peu saillantes. Pattes courtes.

Mâle. Epaules saillantes, anguleuses. Premier tergite abdominal (fig. 39) allongé, avec sa fosse n'occupant que la partie postérieure. Tibias grêles.

Edéage (fig. 42) à capsule basale petite, la lame distale grande et large, lancéolée, transversalement tronquée au sommet. Pièce articulée longuement arquée, à sommet mousse, dépassant amplement le sommet de la lame distale.

2. ***Batrisiella hastata*** sp. n.

(figs. 38 et 41)

INDE. UNITED PROVINCES. Kumaon : Dehra Dun, plusieurs mâles (dont le type) et une femelle (*Dr. M. Cameron*).

Long. 1,8 mm. Ailé. Testacé rougeâtre lisse et luisant, la pubescence assez dense. Antennes plus courtes que chez le précédent, les articles 5 et 6 à peine plus longs que larges. Pronotum aussi long que large, à bosses latérales saillantes. Elytres amples, peu convexes. Pattes courtes.

Mâle. Elytres à épaules saillantes et anguleuses. Premier tergite abdominal (fig. 38) bien plus large que long, á côtés arqués, la fosse très vaste, les deux bosses antéro-latérales du tergite lisses. Tibias grêles.

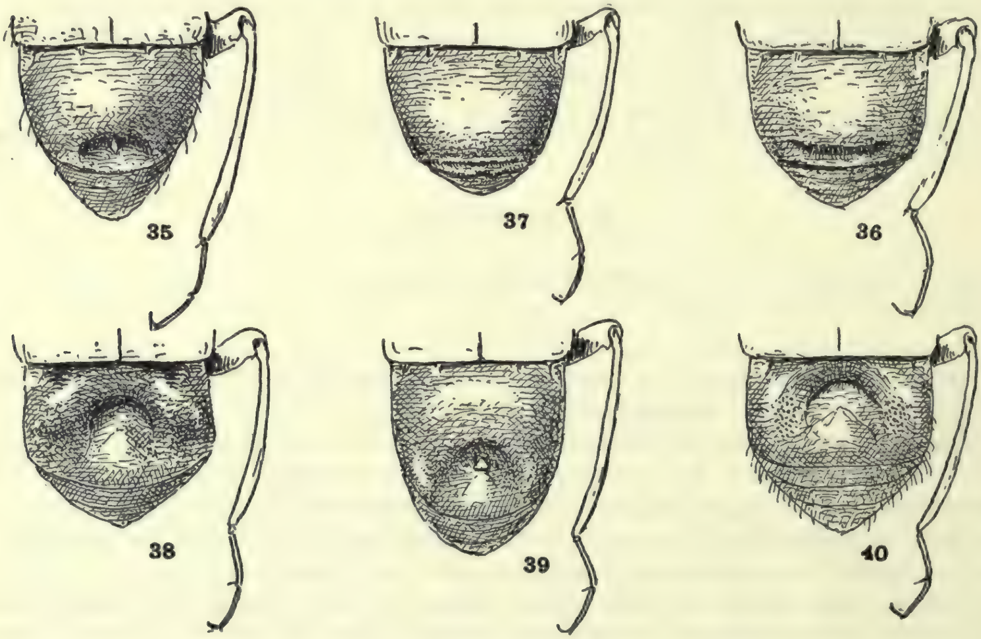
Edéage (fig. 41) à capsule basale transverse et lame distale grande, longuement lobée au milieu de son bord droit et terminée par une palette lancéolée. Pièce articulée courte et peu arquée.

3. ***Batrisiella biharensis*** sp. n.

(figs. 40 et 43)

INDE. BIHAR : Ranchi, un mâle (type) à la lumière.

Long. 1,8 mm. Ailé. Aspect du précédent, quoique un peu moins épais, les antennes aussi courtes.



FIGS. 35–40. Gen. *Batrisiella* Raffr., tergites abdomineux des mâles. Figs. 35 et 36. *B. tibialis* sp. n., de Muila Swallet. Fig. 37. *B. campbelli*, sp. n., de Kadai Kanal.—Fig. 38, *B. hastata* sp. n., de Dehra Dun.—Fig. 39. *B. foveola*, sp. n., de Bareilly.—Fig. 40. *B. biharensis*, sp. n., de Ranchi.

Mâle. Premier tergite abdominal moins large que chez *hastatus*, ses côtés bien moins arqués, la fosse aussi vaste, mais les bosses antéro-latérales portent une aire ponctuée (fig. 40).

Edéage (fig. 43) bien différent de celui du *hastatus*, la capsule basale plus petite, la lame distale large, peu à peu atténuée et tordue en S avant l'extrémité. Pièce articulée grêle, très arquée, avec deux lobes terminaux.

Groupe du tibialis

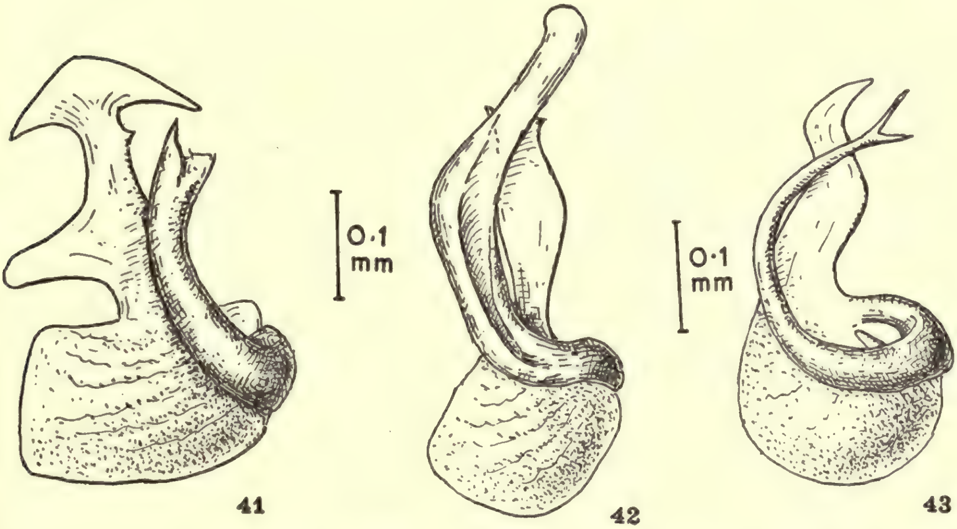
4. ***Batrisiella tibialis*** sp. n.

(figs. 35, 36, 44 et 45)

INDE. UNITED PROVINCES. Kumaon. Chakrata div.: Muila Swallet, une dizaine d'exemplaires (dont le type) (*E. A. Glennie*).

Long. 2,5 mm. Ailé. Testacé rougeâtre luisant, lisse, la pubescence courte. Antennes longues, les articles 4 et 5 deux fois aussi longs que larges, les 6 et 7 un peu moins longs. Pronotum aussi long que large, à bosses latérales peu saillantes. Elytres amples. Pattes longues et grêles.

Mâle. Angles huméraux des élytres effacés. Premier tergite abdominal avec une fosse transverse courte sur la partie postérieure (figs. 35 et 36). Tibias antérieurs (fig. 44) renflés dans leur partie distale, le renflement avec une profonde encoche entre deux dents sur la face dorsale.



FIGS. 41–43. Gen. *Batrisiella* Raffr., édéages, face dorsale, ×140.—Fig. 41, *B. hastata*, sp. n., de Dehra Dun.—Fig. 42, *B. foveola*, sp. n., de Bareilly.—Fig. 43, *B. biharensis*, sp. n., de Ranchi.

Edéage (fig. 45) à capsule basale petite, la lame distale longue et étroite, rectiligne, terminée par une palette plus ou moins recourbée en volute, la pièce articulée arquée mais non infléchie en travers de la lame distale, épaisse à la base et effilée au sommet.

Groupe du campbelli

5. ***Batrisiella campbelli*** sp. n.

(figs. 37 et 46)

INDE. MADRAS : Kodai Kanal, un mâle (type) (*T. V. Campbell*).

Long. 2,2 mm. Brun rougeâtre foncé luisant, la pubescence rare. Délié, les membres longs. Antennes grêles, les articles 5 et 6 deux fois aussi longs que larges. Pronotum aussi long que large, très convexe et très rétréci à la base, ses bosses latérales longuement arrondies. Elytres courts à épaules très effacées chez le mâle, l'abdomen très large. Pattes longues.

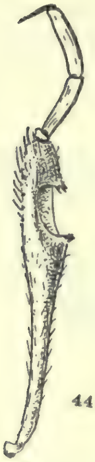
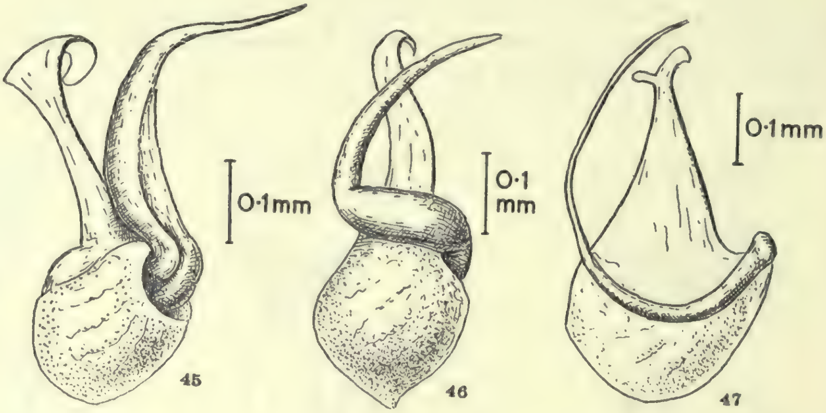


FIG. 44. Gen. *Batrisiella* Raffr., tibia anterieur du mâle de l'*B. tibialis* sp. n., de Muila Swallet.



FIGS. 45–47. Gen. *Batrisiella* Raffr., édéages, face dorsale, × 110. Fig. 45, *B. tibialis* sp. n., de Muila Swallet. Fig. 46. *B. campbelli* sp. n., de Kadai Kanal. Fig. 47. *A. proterva* Raffr., des Nilgiri Hills.

Mâle. Premier tergite abdominal uni, à bord distal un peu échancré, le deuxième tergite avec une étroite fosse transverse (fig. 37).

Edéage (fig. 46) à capsule basale arrondie, un peu caudée à la base, la lame distale étroite, peu à peu rétrécie et incurvée au sommet. Pièce articulée èpaisse et couchée en travers sur la base de la lame distale, puis coudée et effilée en longue pointe.

Groupe du proterva

6. ***Batrisiella proterva*** Raffray

(fig. 47)

Raffray, 1908, *Ann. Soc. ent. Belge*, **52** : 206 (*Batrisocenus*) ; type : Nilgiri Hills (Mus. Paris).

INDE. MADRAS : Nilgiri Hills, mâle et femelle (*H. E. Andrewes*).

Long. 2 mm. Ailé. Testacé rougeâtre lisse et luisant, la pubescence longue et hirsute, peu dense. Robuste. Antennes épaisses, peu longues, les articles 5 et 6 une fois et demie aussi longs que larges. Pronotum aussi long que large, sa plus grande largeur au milieu, la base large, le disque fortement sillonné. Arrière-corps ovale. Pattes robustes.

Mâle. Elytres plus longs, à épaules saillantes et anguleuses. Premier tergite abdominal avec un petit pli médian sur le bord postérieur, le deuxième tergite avec une fosse transverse dont le bord postérieur est retroussé en petite lame transverse triangulaire.

Edéage (fig. 47) à capsule basale large, arrondie, la lame distale triangulaire, large à la base et très rétrécie au sommet qui porte deux apophyses. Pièce articulée très longue, très grêle, arquée en demi-cercle.

Trib. ARNYLLIINI Jeannel

Gen. *ARNYLLIUM* Reitter

Arnyllium Reitter, 1883 ; type : *pectinatum* Reitter. Raffray, 1896, *Ann. Soc. ent. France,* **65** : 250. 1904, loc. cit. **73** : 43. Jeannel, 1952, *Rev. fr. d'Ent.* **19** : 101. 1957, loc. cit. **24** : 18.

1. *Arnyllium stevensi* sp. n.

(figs. 48 à 51)

SIKKIM : Gopaldhara, une dizaines d'exemplaires (dont le type) (*H. Stevens*).

Long. 3 mm. Testacé rougeâtre, lisse et luisant, la pubescence rare sur l'avant-corps, courte et dressée sur les élytres et l'abdomen. Tête médiocre, les yeux plus courts que les tempes. Antennes pectinées (groupe I de Raffray), les articles 1 à 6 simples, les 7 et 8 avec une tubérosité sur la face interne, les 9 et 10 avec des lobes qui ne sont pas plus longs que larges, le 11 régulièrement elliptique (Text-fig. 49). Pronotum à peine plus long que large. Arrière-corps ovale, large et très convexe. Pattes très robustes.

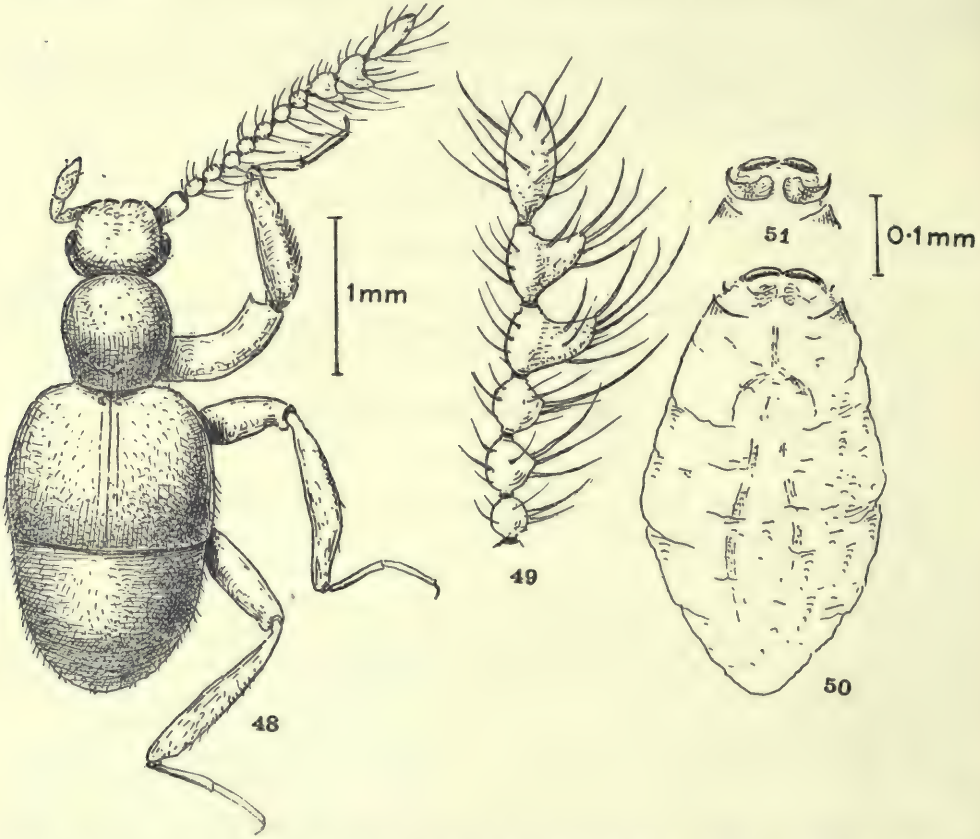
Mâle. Tibias antérieurs plus épais à la base, leur face dorsale avec une brosse de soies.

Edéage (fig. 50) ovale, membraneux, son extrémité distale avec deux sclérites et les deux styles en forme de petits crochets cachés à la face ventrale (Text-fig. 51).

Différent des autres espèces à antennes pectinées par la réduction des lobes des articles. Chez le *pectinatum* Reitter, *ciliatum* Raffr., *forcipiter* Raffr., tous de la Malaisie, les lobes des articles 7 à 10 sont nettement plus longs que larges.

Trib. PROTERINI Jeannel

J'ai déja signalé (1952, *Rev. fr. d'Ent.* **19** : 80) que les genres asiatiques de cette tribu sont de deux sortes. Chez les genres indo-malais *Proterus* Raffr., *Neodeuterus* Schauf., *Phthartomicrus* Schauf., *Intempus* Reitt., *Mechanicus* Schauf., *Pseudoterus* Raffr., genres que Raffray avait classés parmi ses Euplectini, les antennes sont toujours épaisses, avec les articles de la massue très épais, et le premier tergite abdominal est court, pas plus long que le deuxième. Chez d'autres genres, par contre—et ceux-ci s'allient aux genres africains—les antennes sont grêles, à massue formée de trois articles bien déliés dont le dernier seul est très gros ; le premier tergite est géneralement bien plus grand que le deuxième. Les genres *Bythinophanax* Reitt. et *Bythinoderes* Reitt. sont de ce type, et Raffray les avait placés dans ses Tychini (Bythinini).



Figs. 48–51. Gen. *Arnyllium* Reitti. Fig. 48, *A. stevensi* sp. n., mâle, du Sikkim, × 21. Fig. 49. Sommet le l'antenne. Fig. 50, Edéage, face dorsale, × 100. Fig. 51, Extrémité dislate de l'édéage, face ventrale.

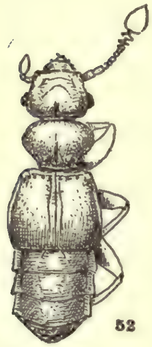
Dans l'Inde péninsulaire, il existe un *Mechanicus sculpturatus* Raffr., décrit des Nilgiri Hills (1908, *Ann. Soc. ent. Belg.* **52** : 205), espèce à forte ponctuation, remarquable par sa massue antennaire de trois articles et non de deux. Le type ne se trouve pas dans la collection Raffray.

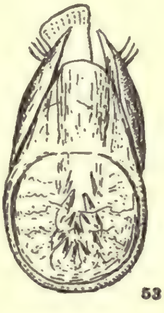
Par contre dans l'Inde septentrionale se trouvent deux espèces de même type antennaire que les *Bythinoderes* et *Bythinophanax*, c'est-à-dire aussi que les formes africaines.

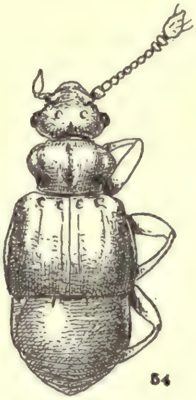
Gen. ***CEPHALAXIS*** nov.

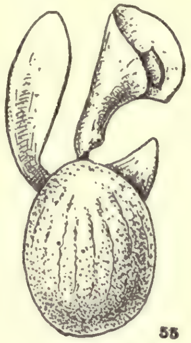
Type : *championi* sp. n.

Allongé, subparallèle et lisse, la tête très grande, le yeux petits, le front uni et convexe. Palpes maxillaires petits, à massette ovale. Antennes fines, à funicule grêle et articles 9 et 10 transverses mais guère plus larges que les articles du funicule, l'article 11 au contraire très renflé. Pronotum lisse, à bosses latérales saillantes, le disque à peine sillonné, avec deux tubercules encadrant la fovéole basale. Elytres à trois très petites fossettes basales, les rebords latéraux bien visibles de haut. Abdomen allongé, parallèle, les quatre premiers tergites rebordés, le premier plus grand que le deuxième, avec des carénules basales. Cavités coxales postérieures très séparées ; six sternites tous articulés, les cinq premiers sensiblement de même longueur. Pattes robustes, le deuxième article des tarses épais.









FIGS. 52–53. Gen. *Cephalaxis* nov. Fig. 52. *C. championi* sp. n., mâle, ×32. Fig. 53, Edéage, face dorsale, ×160.

FIGS. 54–55. Gen. *Salpictomelus* nov. Fig. 54, *S. pachys* sp. n., mâle, de Haldwani distr., ×37. Fig. 55, Edéage, face forsale, ×140.

Edéage (fig. 53) symétrique, avec deux styles sétifères.

Genre très isolé de tous ceux placés dans la tribu des Proterini. Il est le seul à avoir trois fossettes à la base des élytres. D'autre part le faciès évoque les Euplectini, mais avec la différence essentielle que les cavités coxales postérieures sont séparées par une grande apophyse du metasternum. Quant à l'édéage, sa structure symétrique et ses styles sétifères rappellent tout à fait certains *Bryaxis* (*Arcopagus*).

Cephalaxis championi sp. n.

(figs. 52 et 53)

INDE. UNITED PROVINCES. Kumaon : Tanagpur, un mâle (type) (*H. G. Champion*); Dehra Dun, une femelle (*Dr. M. Cameron*).

Long. 1,2 mm. Ailé. Testacé rougeâtre, lisse et luisant, la pubescence très fine et très rare. Allongé et parallèle, déprimè. Tête volumineuse, transverse, le lobe frontal court et large, le front convexe, avec une grande fossette occipitale, les yeux petits, plus courts que les tempes qui sont convexes. Antennes longues et fines, les articles 9 et 10 très plats, discoïdes, le 11 très volumineux. Pronotum transverse, les bosses latérales saillantes et arrondies, les côtés sinués en arrière ; disque à peine sillonné sur la ligne médiane, sans sillons latéraux. Elytres à peu près aussi longs que larges, aplatis, sans strie discale. Abdomen à trois premiers tergites de même longueur, le quatrième petit ; carénules basales du premier tergite obliques, espacées de moins du tiers du disque à la base.

Edéage (fig. 53) à capsule basale arrondie, avec un manchon distal atténué, laissant voir une lame ventrale inclinée à droite et tronquée. Styles symétriques, acuminés, avec trois soies subapicales sur la face externe.

Gen. ***SALPICTOMELUS*** nov.

Type : *pachys* sp. n.

Forme large et épaisse des *Mechanicus* Schauf., mais avec les caractères essentiels de *Bythinophanax*. Epais et lisse, la tête transverse, le front convexe. Palpes maxillaires petits, la massette ovalaire. Antennes fines, la massue de trois articles, mais les 9 et 10 à peine plus larges que le 8, le 11 seul renflé. Pronotum transverse, à bosses latérales arrondies, sans troncature postérieure, le disque avec un sillon médian et des sillons latéraux ; pas de tubercules sur le disque. Elytres amples, larges ; deux grandes fossettes basales, la strie discale présente. Abdomen à premier tergite bien plus grand que le deuxième. Cavités coxales postérieures très distantes, écartées du tiers de la largeur du métasternum ; six sternites abdominaux, les deux premiers très grands et subégaux. Pattes grêles.

Edéage (fig. 55) constitué par une capsule basale portant une tubulure en forme de trompette, qui renferme la terminaison du sac interne ; deux styles achètes, très inégaux.

Genre à placer près de *Bythinophanax* Reitt., à cause du développement du premier tergite abdominal, mais très isolé par la structure de l'édéage.

Salpictomelus pachys sp. n.

(figs. 54 et 55)

Inde. United Provinces. Kumaon : Haldwani distr., 7 exemplaires (dont le type) (*H. G. Champion*).

Long. 1,1 mm. Ailé. Testacé rougeâtre, lisse et luisant, la pubescence fine et rare. Très épais, trapu. Tête médiocre, transverse, le lobe frontal déprimé, le vertex saillant ; yeux plus longs que les tempes. Pronotum transverse, les bosses latérales arrondies, les côtés sinués en arrière, la base large ; disque convexe, à sillon médian large et profond. Elytres subcarrés, très amples et assez convexes, le rebord marginal bien visible de haut. Premier tergite abdominal très grand, peu convexe, à bord marginal caréné sur toute sa longueur ; carénules externes obliques ; carénules basales courtes, espacées de moins du tiers de la largeur du disque. Pattes grêles.

Edéage (fig. 55) à capsule basale ovale, hyaline, sans fenêtre dorsale ; la tubulure distale, très étroite à la base, s'infléchit à gauche puis s'élargit en pavillon de trompette, dans lequel se voit un sclérite. Styles lamelleux, très inégaux, le droit grand et ovale, le gauche court, tous deux sans soies.

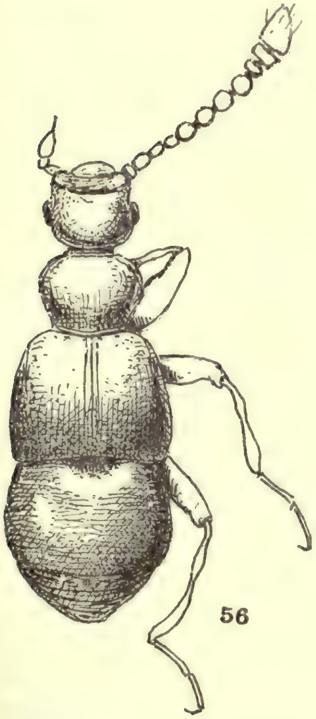
Trib. BRACHYGLUTINI Raffray

Gen. ***DIROPTRUS*** Motschulsky

Diroptrus Motschulsky, 1858, *Et. Ent.*, **7** : 28 ; type : *ceylanicus* Motschulsky. Raffray, 1904, *Ann. Soc. ent. France,* **73** : 200.

Genre formé d'espèces ayant l'aspect des *Batraxis* Reitt., mais avec le petit article distal des palpes maxillaires filiforme, aussi long que la moitié de la massette.

Les espèces connues jusqu'ici, *ceylanicus* Motsch., *monoceros* Raffr. et une troisième inédite, vivent à Ceylan. L'espèce suivante, de l'Inde septentrionale, diffère des espèces cinghalaises par la présence de caractères sexuels sur le funicule antennaire.



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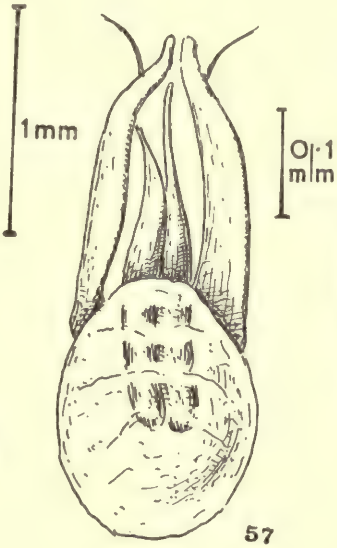

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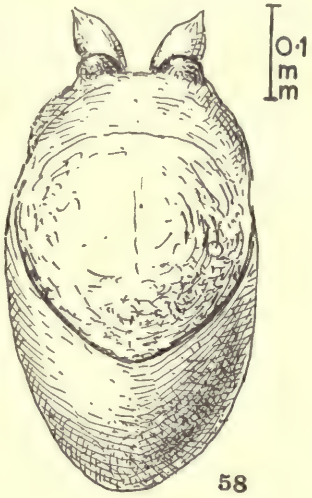

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Figs. 56–57. Gen. *Diroptrus* Motsch. Fig. 56. *D. monilicornis* sp. n., mâle, de W. Almora, × 30. Fig. 57. Edéage, face dorsale, × 140.

Fig. 58. Gen. *Rybaxis* Saulcy ; édéage du *R. ocellata* Raffr., de Nainital, × 125.

Diroptrus monilicornis sp. n.

(figs. 56 et 57)

Inde. United Provinces. Kumaon : W. Almora, 2 mâles (dont le type) et 2 femelles (*H. G. Champion*) ; Sarjü valley, alt. 1,200 m., 2 femelles (*H. G. Champion*).

Long. 2 mm. Ailé. Brun de poix luisant très foncé, glabre. Allongé et délié. Tête médiocre, arrondie, le front lisse et uni, le lobe frontal large, transversalement sillonné, avec les tubercules antennaires saillants en dehors ; yeux plus courts que les tempes qui sont convexes. Antennes longues, les articles 9 et 10 transverses, le 11 triangulaire et un peu asymétrique. Pronotum transverse, sa plus grande largeur avant le milieu, le disque très convexe, uni et luisant, la fovéole basale ponctiforme ; pas de fossettes latérales. Elytres très régulièrement convexes, les fossettes basales très petites (au nombre de deux) ; pas trace de strie discale. Premier tergite abdominal très grand, avec une vaste fossette du bord basal. Pattes grêles, les tibias difformes dans les deux sexes, avec une constriction médiane, suivie d'une dilatation de la moitié distale ; terses longs et grêles.

Mâle. Antennes avec les articles 5 à 8 renflés, subsphériques, alors que ces articles sont grêles et un peu plus longs que larges chez la femelle.

Edéage (fig. 57) à capsule basale sphérique, membraneuse, les styles très longs, convergents par leurs extrémités distales, amincies et coudés en dedans ; une grande soie externe sur la coudure. Sac interne avec une paire de longues baguettes.

Cet édéage est très différent de celui du *Batraxis curvispina* Raffr. (1952, *Rev. fr. d'Ent.* **19** : 84, fig. 19).

Gen. ***RYBAXIS*** Saulcy

Rybaxis Saulcy, 1876, *Spec.* **2** : 136 ; type : *sanguinea* Leach. *Bryaxis* Leach, nec Kugelan.

Rybaxis ocellata Raffray

(fig. 58)

R. occellata Raffray, 1908, *Ann. Soc. ent. Belg.* **52** : 208 ; type : Nilgiri Hills (Mus. Paris).

Edéage : fig. 58.

Inde. Punjab Oriental : Jibbi Seraj, alt. 1,800 m. env., une femelle (*H. G. Champion*). Kumaon : W. Almora, Nainital, 2 mâles et une femelle (*H. G. Champion*).

Inde. Madras : Nilgiri Hills, mâles et femelles (*H. L. Andrewes*).

Gen. ***REICHENBACHELLA*** Jeannel

Comme je l'ai déja signalé, les *Reichenbachella* asiatiques ont fréquemment des édéages sans soies sur les styles, mais ces édéages ont toujours les raphés longitudinaux qui sont caractéristiques du genre.

Reichenbachella sardana sp. n.

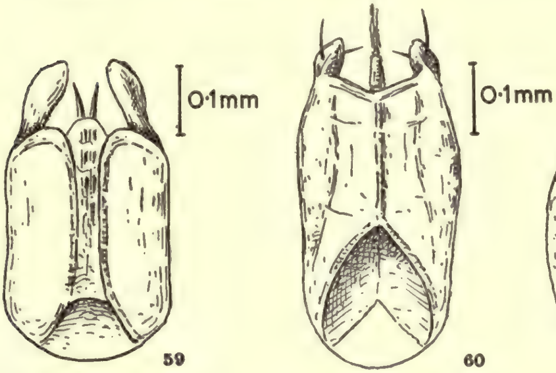
(fig. 60)

Pakistan. Pakistan Oriental : Sarda, mâle (type) et femelle (F. W. C.).

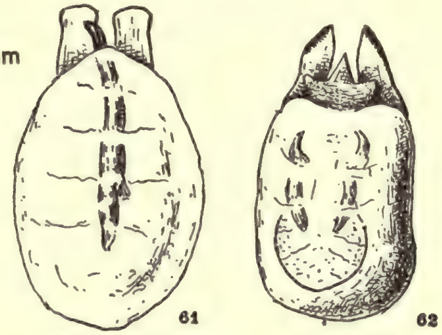
Long. 1,8 mm. Testacé rougeâtre, la pubescence fine et très courte, la ponctuation très superficielle. Voisin de l'*indica* Raffray. Même forme générale, quoique l'abdomen soit moins contracté. Comme chez l'*indica* les carénules basales du premier tergite abdominal ne sont écartées que du cinquième de la largeur du disque. La ponctuation du pronotum et des élytres est la même chez les deux espèces. Mais les antennes du *sardana* sont bien plus courtes ; les articles 5 à 7 sont à peine plus longs que larges, le 8 est très court et le 10 un peu transverse, alors que chez l'*indica* les articles 5 à 7 sont près de deux fois aussi longs que larges, le 8 nettement plus long que large, le 10 tronconique et aussi long que large.

Edéage (fig. 60) à capsule basale allongée, avec un raphé médian prolongeant la fenêtre dorsale ; bord distal échancré. Styles écartés, courts, à sommet obtus, portant deux soies : une grande dorsale, une petite latérale interne. Sac interne avec une longue phanère médiane paraissant terminée par un faisceau de soies.

L'édéage de l'*indica* est inconnu.



FIGS. 59–60. Gen. *Reichenbachella* Jeann., édéages, face dorsale, ×90. Fig. 59. *R. mandibularis* sp. n., de Kyankian. Fig. 60. *R. sardana* sp. n., de Sarda.



FIGS. 61–62. Gen. *Trissemus* Jeann., édéages, face dorsale, × 120. FIG. 61, *T.* (*Trissemellus*) *cursitans* sp. n., de W. Almora. Fig. 62. *T.* (*Trissemites*) *haldwaniensis* sp. n., de Haldwani distr.

Reichenbachella indica Raffray

R. indica Raffray, 1908, *Ann. Soc. ent. Belg.* **52** : 207 ; type : Bugeli (Mus. Paris).

INDE. BOMBAY : Bugeli, distr. de Belgaum, une femelle (coll. Raffray).

Reichenbachella mandibularis sp. n.

(fig. 59)

BIRMANIE : Kyankian, deux mâles (dont le type) (*H. G. Champion*).

Long. 1,2 mm. Ailé. Testacé rougeâtre, lisse, la pubescence fine et très courte. Tête médiocre, le lobe frontal excavé, les yeux plus longs que les tempes qui sont effacées, peu convexes. Mandibules armées, sur leur bord externe, d'une longue corne un peu incurvée, aussi longue que les trois premiers articles des antennes et dirigée en dehors et en avant. Antennes longues et robustes, tous les articles jusqu'au 7 nettement plus longs que larges, les 8 et 9 à peine plus longs que larges, le 9 un peu plus épais que le 8 ; article 10 tronconique et plus long que large, peu renflé, le 11 près de deux fois aussi long que le 10. Pronotum subglobuleux, à peu près lisse. Elytres aussi longs que larges, lisses. Carénules du premier tergite abdominal écartées du quart de la largeur du disque. Pattes robustes.

La femelle est inconnue. Il est probable que les cornes mandibulaires se montreront être un caractère sexuel mâle, comme chez le *R. rosmarus* Reitt. du Ghana et de la Guinée.

Edéage (fig. 59) plus court que celui du *sardana*, et avec deux raphés dorsaux au lieu d'un. Styles plus longs, spatulés, sans soies. Deux pièces copulatrices dans le sac interne.

Gen. ***TRISSEMUS*** Jeannel.

Trissemus Jeannel, 1949, type: ***antennatus*** Aubé. 1958, ***Mém. Mus. Zool.*** **18** : 99.

Tableau des Espèces de l'Inde et du Pakistan

1. Carénules basales du premier tergite abdominal espacées du quart de la largeur du disque. Antennes grêles. (Subg. *Trissemites* Jeann.) 3

–. Carénules basales du premier tergite espacées du tiers ou de plus du tiers de la largeur du disque[1] 2

2. Antennes épaisses, avec des articles du funicule épaissis chez les mâles. (Subg. *Trissemus* s. str.) 4

–. Antennes grêles, sans articles du funicule épaissis chez les mâles. (Subg. *Trissemellus* Jeann.) 5

Subg. *Trissemites* Jeann.

3. Tête petite, plus étroite que le pronotum, les yeux plus longs que les tempes. Antennes longues, atteignant la base des élytres. Long. 1,8 à 2 mm. 1. ***haldwaniensis*** sp. n.

–. Tête grande, aussi large que le pronotum, les yeux petits, bien plus courts que les tempes. Antennes courtes, atteignant à peine la base du pronotum. Long. 2 mm. 2. ***brevicornis*** sp. n.

Subg. *Trissemus* s. str.

4. Tête large ; pronotum finement et éparsement ponctué. Antennes épaisses, à article 5 épaissi mais subcylindrique chez le mâle. Long. 2 mm. . 3. ***cameroni*** sp. n.

Subg. *Trissemellus* Jeann.

5. Antennes semblables dans les deux sexes, la massue peu épaisse. (Groupe du *championi*) 7

–. Antennes à massue modifiée chez les mâles 6

6. Massue grêle, le dernier article avec un tubercule sur la face inférieure chez le mâle. (Groupe du *distans*) 9

–. Massue épaisse, les articles asymétriques, à bords tranchants chez le mâle. (Groupe de l'*antilope*) 10

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[1] C'est par erreur que le tableau des *Trissemus* du Japon (1958, *Mém. Mus., Zool.* **18** : 99) assigne des carénules basales espacées du cinquième de la largeur du disque du tergite aux *Trissemus* s. str. L'écartement est du quart chez les espèces méditerranéennes, du tiers chez les espèces asiatiques et japonaises.

Groupe du *championi*

7. Premier tergite abdominal élargi en arrière, ses bords latéraux à peu près rectilignes. Grande taille 8
–. Premier tergite abdominal non élargi en arrière, ses bords arqués. Long. 1,4 à 1,6 mm. . . . . 6. ***cursitans*** sp. n.
8. Plus grand. Antennes plus longues. l'article 5 trois fois aussi long que large chez le mâle. Long. 2 mm. . . . . 4. ***championi*** sp. n.
–. Plus petit. Antennes moins longues, l'article 5 seulement deux fois aussi long que large. Long. 1,8 mm. . . . . 5. ***hamulatus*** sp. n.

Groupe du *distans*

9. Délié, les pattes longues. Antennes longues, à article 10 transverse, aussi large que le 11 ; celui-ci bien délié. Long. 1,5 mm. . . . . . 7. ***distans*** sp. n.

Groupe de l'*antilope*

10. Epais quoique allongé. Antennes du mâle épaisses, à articles 5 et 6 renflés, le 9 très plat, le 10 en cupule à bord tranchant, entourant la base du 11. Long. 2 mm. 8. ***duplicatus*** sp. n.

Subg. ***Trissemites*** Jeannel

Trissemus (Trissemites) haldwaniensis sp. n.

(fig. 62)

INDE. UNITED PROVINCES. Kumaon : Haldwani distr., nombreux exemplaires (dont le type) (*H. G. Champion*) ; W. Almora, un mâle oedimère de la var. *grossipes*, nov. (type) (*H. G. Champion*).

Long. 1,8 à 2 mm. Ailé. Rougeâtre, les membres clairs ; pubescence fine et courte. Allongé mais robuste. Tête petite, allongée, le yeux plus longs que les tempes qui sont convexes, un peu saillantes ; fossettes frontales peu développées. Antennes longues et fines, le pédicelle allongé, les articles 3 à 7 deux fois aussi longs que larges, les 8 à 10 un peu plus longs que larges, le 8 petit, le 10 peu épais ; article 11 elliptique, moins de deux fois aussi long que le 10 et un peu plus épais. Pronotum et élytres lisses. Carénules basales du premier tergite abdominal espacées du quart de la largeur du disque.

Les mâles sont généralement semblables aux femelles, ne différant que par la présence d'une dent apicale interne aux tibias intermédiaires. Mais il existe des mâles oedimères (var. ***grossipes***, nov.), de taille plus grande (2 mm.), de forme épaisse, avec les pattes très épaisses : les fémurs sont très renflés et les tibias nettement épaissis. L'édéage de ces mâles oedimères est semblable à celui des autres.

Edéage (fig. 62) à capsule basale membraneuse, quadrangulaire, avec l'orifice apical rétréci dans une collerette. Styles courts, non convergents, terminés en pointe dont le bord externe est noirâtre. Une paire de grosses dents dans le sac interne.

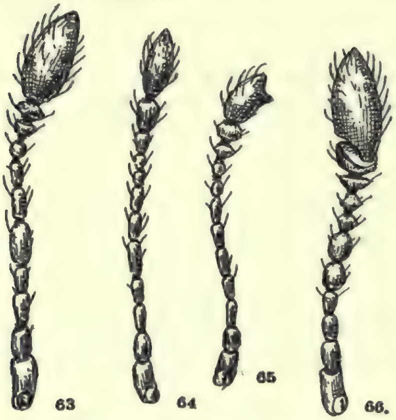
2. ***Trissemus (Trissemites) brevicornis*** sp. n.

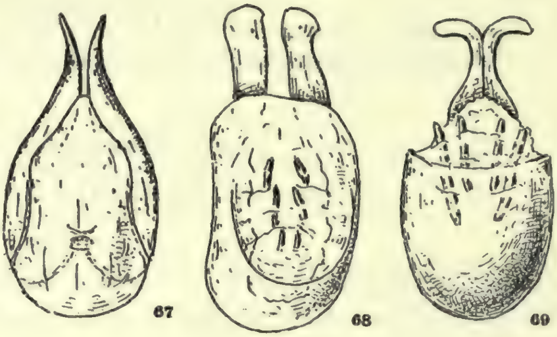
KASHMIR : Gulmarg, une femelle (type) (*Dr. M. Cameron*).

Long. 2 mm. Ailé. Rougeâtre luisant, la pubescence courte et fine. Tête grande, aplanie, aussi large que le pronotum, le lobe frontal large, sans fossette médiane, les yeux petits, guère plus longs que la moitié des tempes qui sont effacées mais un peu anguleuses près du cou. Antennes courtes, le pédicelle peu allongé, épais, l'article 3 aussi long que le pédicelle mais mince ; articles 4 à 6 à peine plus longs que larges, les 7 et 8 petits et globuleux, les 9 et 10 transverses, le 11 ovoïde, épais. Pronotum transverse, à côtés bien arrondis en avant, le disque très bombé, lisse, les fossettes latérales grandes. Elytres aussi longs que larges, épais. Carénules basales du premier tergite abdominal espacées du quart de la largeur du disque. Pattes grêles, assez longues.

Mâle inconnu.

Bien reconnaissable à la brièveté des antennes.





Figs. 63–66. Gen. *Trissemus* Jeann., antennes de mâles. Fig. 63. *T.* (s. str.) *cameroni* sp. n., de Deoban. Fig. 64. *T.* (*Trissemellus*) *championi* sp. n., de Nainital. Fig. 65, *T.* (*Trissemellus*) *distans* sp. n., de Haldwani distr. Fig. 66, *T.* (*Trissemellus*) *duplicatus* sp. n., de Darjeeling.

Figs. 67–69. Gen. *Trissemus* Jeann., édéages, × 120. Fig. 67, *T.* (s. str.) *cameroni* sp. n., de Deoban. Fig. 68, *T.* (*Trissemellus*) *championi* sp. n., de Nainital. Fig. 69, *T.* (*Trissemellus*) *hamulatus* sp. n., de Nainital.

Subg. **Trissemus** s. str.

3. **Trissemus** (s. str.) **cameroni** sp. n.

(figs. 63 et 67)

Inde. Punjab Oriental : Parhatti valley, à Kulu, alt. 2,500 m. env., 3 exemplaires (*H. G. Champion*). United Provinces. Chakrata distr.; Sainj Khud ; Khedar Khud, alt. 2,000 m. env.; Patra Khud et Dodora Khud, alt. 2,500 m. env.; Deoban, Korawa Khud (type), alt. 3,000 m. env., un mâle (*Dr. M. Cameron*).

Long. 2 mm. Ailé. Testacé rougeâtre, la pubescence très courte. Robuste. Tête grande, le lobe frontal étroit, excavé, sans fossette villeuse ; yeux plus courts que les tempes qui sont peu convexes. Antennes (Text-fig. 63) épaisses, le pédicelle plus petit que le scape mais pas plus gros que les articles du funicule, les articles 3 à 6 un peu plus longs que larges, les 7 et 8 petits, pas plus longs que larges, les 9 et 10 courts et transverses, le 11 bien plus épais que le 10. Pronotum transverse, finement et éparsement ponctué. Elytres amples, lisses. Carénules basales du premier tergite abdominal écartées du tiers de la largeur du disque. Pattes robustes.

Mâle. Article 5 des antennes nettement plus gros que ses voisins, quoique encore cylindrique ; article 11 deux fois plus grand que chez la femelle. Tibias intermédiaires avec une dent apicale interne obtuse.

Edéage (fig. 67) à capsule basale membraneuse ; les styles grands, effilés, convergents, terminés par deux pointes contiguës et un peu divergentes.

Espèce de même groupe que l'*alienus* Sharp, du Japon, et le *lindbergi* Jeann. de l'Afganistan. Chez l'*alienus*, c'est l'article 6 de l'antenne qui est renflé chez le mâle, chez le *lindbergi* c'est le 5, comme chez le *cameroni* ; mais la forme de l'article renflé est différente, subcylindrique chez le *cameroni*, subsphérique chez les autres.

Subg. **Trissemellus** Jeannel

Groupe du championi

4. ***Trissemus (Trissemellus) championi*** sp. n.

(figs. 64 et 68)

INDE. UNITED PROVINCES. Kumaon : W. Almora, Nainital, alt. 2,500 m. env., 2 mâles (dont le type) (*H. G. Champion*).

Long. 2 mm. Ailé. Rougeâtre, la pubescence courte mais dense, surtout sur les élytres. Tête allongée, plus étroite que le pronotum, le lobe frontal avec une fossette médiane villeuse, semblable aux fossettes ocellaires ; yeux presque aussi longs que les tempes qui sont un peu anguleuses. Antennes (fig. 64) longues et fines, l'article 5 trois fois aussi long que large, les 8, 9 et 10 aussi longs que larges. Pronotum presque aussi long que large, lisse, les côtés sinués en arrière. Elytres amples, convexes. Carénules du premier tergite abdominal espacées du tiers de la largeur du disque. Pattes grêles.

Mâle. Tibias intermédiaires avec une forte dent apicale interne.

Edéage (fig. 68) à capsule basale membraneuse ; épaisse, un peu quadrangulaire ; styles grands, parallèles, terminés en spatule arrondie. Trois paires de petites dents dans le sac interne.

5. ***Trissemus (Trissemellus) hamulatus*** sp. n.

(fig. 69)

INDE. UNITED PROVINCES. Kumaon : W. Almora, Nainital, alt. 2,500 m. env., 3 mâles (dont le type) (*H. G. Champion*).

Long. 1,8 mm. Ailé. Rougeâtre. Très voisin du *championi*, mêmes caractères généraux, mais un peu moins grand. Tête semblable. Antennes fines, un peu plus courtes, l'article 5 n'est que deux fois plus long que large, les 8 et 9 à peine plus longs que larges. Pronotum sans sinuosité des côtés. Elytres un peu moins convexes.

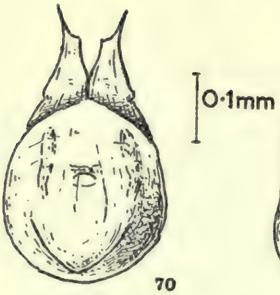
Premier tergite abdominal avec le même écartement des carénules basales, mais nettement élargi en arrière. Pattes semblables.

Edéage (fig. 69) bien différent de celui du *championi*. La capsule basale a la forme d'une urne et les styles, contigus sur la ligne médiane, s'amincissent en lames étroites qui se recourbent à angle droit en dehors, dans la partie distale. Sac interne avec deux paires de baguettes.

6. ***Trissemus (Trissemellus) cursitans*** sp. n.

(fig. 61)

INDE. UNITED PROVINCES. Kumaon : W. Almora, Nainital, mâles et femelles (dont le type) (*H. G. Champion*) ; Haldwani distr., mâles et femelles (*H. G. Champion*); Chakrata distr.: Kanasar, une femelle (*Dr. M. Cameron*). PAKISTAN. PAKISTAN ORIENTAL : Sarda, une femelle (*F. W. C.*).



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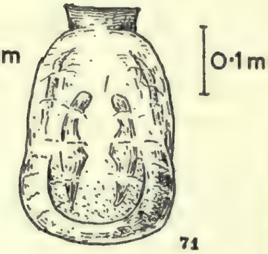

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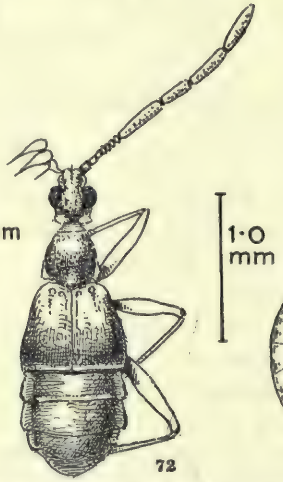

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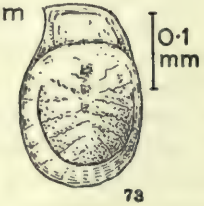

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FIGS. 70–71. Gen. *Trissemus* Jeann., édéages, × 90. Fig. 70, *T.* (*Trissemellus*) *duplicatus* sp. n., de Darjeeling. Fig. 71, *T.* (*Trissemellus*) *distans* sp. n., de Haldwani distr.

FIGS. 72–73. Gen. *Ctenistes* Reich. Fig. 72. *C. gracilis* sp. n., mâle, de Haldwani distr., × 19. Fig. 73, Edéage, × 100.

Long. 1,4 à 1,6 mm. Ailé. Rougeâtre, la pubescence très courte. Aspect des précédents mais plus petit. Même caractères céphaliques, les antennes fines, plus courtes. Pronotum transverse, lisse. Elytres assez convexes. Premier tergite abdominal nettement élargi en arrière, les carénules basales espacées de plus du tiers de la largeur du disque. Pattes grêles.

Mâle. Taille toujours plus grande. Antennes plus longues, l'article 5 deux fois aussi long que large, les 8 et 9 un peu plus longs que larges. Tibias intermédiaires avec une petite dent apicale interne.

Femelle. Deux sortes de femelles. Les une (Nainital) semblables aux mâles, sauf que les tibias intermédiaires sont inermes. Les autres (var. ***discedens***, nov.

(avec la forme typique à Nainital et seule dans les autres stations)) sont plus petites, avec les antennes plus courtes, à article 5 à peine plus long que large et les 8 et 9 globuleux et 10 transverse.

Edéage (fig. 61) de même type que celui du *championi*, mais avec la capsule basale plus ovale, les styles plus courts, le sac interne avec une seule pièce copulatrice.

Groupe du distans

7. ***Trissemus (Trissemellus) distans*** sp. n.

(figs. 65 et 71)

INDE. UNITED PROVINCES. Kumaon : Haldwani distr., un mâle (type) (*H. G. Champion*).

Long. 1,5 mm. Ailé. Brunâtre luisant, la pubescence très fine et courte. Grêle et délié. Tête aussi large que le pronotum, le lobe frontal avec une petite fossette villeuse, les yeux aussi longs que les tempes qui sont courtes mais anguleuses. Antennes (fig. 65) grêles, à massue déliée et peu épaisse, les articles 3 à 6 deux fois plus longs que larges, les 7 et 8 petits, subglobuleux, les 9 et 10 transverses. Pronotum petit, presque aussi long que large, ses côtés faiblement sinués en arrière, le disque lisse, très luisant, les fossettes latérales très grandes. Elytres amples et convexes. Carénules basales du premier tergite abdominal écartées de plus du tiers de la largeur du disque. Pattes très grêles.

Mâle. Dernier article des antennes avec une dent sur la face inférieure. Tibias intermédiaires avec une dent subapicale interne très saillante.

Edéage (fig. 71) à capsule basale membraneuse, les styles soudés, représentés par une lame tronquée. Sac interne avec deux grosses pièces copulatrices.

Par ses caractères sexuels antennaires, cette espèce rappelle l'*obtusus* Raffr. de l'Afrique Orientale, mais n'a aucune parenté avec lui.

*Groupe de l'*antilope

8. ***Trissemus (Trissemellus) duplicatus*** sp. n.

(figs. 66 et 70)

INDE. BENGALE OCCIDENTAL : Darjeeling, un mâle (type) (*Dr. M. Cameron*).

Long. 2 mm. Ailé. Rougeâtre foncé, la pubescence courte et rare. Allongé, robuste. Tête grande, arrondie, le lobe frontal avec une fossette très petite, les yeux peu saillants, aussi longs que les tempes qui sont régulièrement convexes. Antennes robustes. Pronotum un peu transverse, très finement ponctué, les fossettes latérales petites. Elytres peu bombés. Premier tergite abdominal non élargi en arrière, ses côtés arqués, les carénules basales espacées du tiers de la largeur du disque. Pattes robustes.

Mâle. Antennes (fig. 66) à massue très épaisse ; articles 5 et 6 plus gros que 7 et 8 qui sont courts et transverses ; article 9 très transverse, lenticulaire, à bord tranchant, le 10 en forme de cupule dans laquelle l'article 11 repose par sa partie inféro-basale qui fait une saillie anguleuse. Tibias intermédiaires avec une forte dent subapicale.

Edéage (fig. 70) à capsule basale sphérique, les styles larges et contigus á la base, atténués et déhiscents dans leur partie distale qui se termine par une troncature dont l'angle externe se prolonge en épine acérée.

Espèce du même groupe que l'*antilope* Raffr. du Japon, l'*implicita* Raffr. du Tonkin et de Formose, ainsi que d'autres espèces du Siam, de Borneo et de Manille (1958, *Mém. Mus., Zool.* **18** : 103).

Trib. PSELAPHINI Raffray

Gen. ***TRICHOPSELAPHUS*** Jeannel

Trichopselaphus Jeannel, 1950, type *gibbicollis* Raffray. Jeannel, 1959, *Ann. Mus. Congo Belge*, sér. in-8°, Zool. **75** : 595

Genre répandu dans l'Afrique intertropicale, jusqu'ici inconnu de l'Asie, où par contre les *Pselaphaulax* Reitt., à renflement distal de la massue antennaire lisse, sont assez nombreux.

Trichopselaphus indicus sp. n.

INDE. UNITED PROVINCES. Kumaon : Dehra Dun, un mâle (type) (*Dr. M. Cameron*).

Long. 2 mm. Ailé. Testacé rougeâtre luisant, presque glabre, sauf q'il existe de grandes soies dorées sur les côtés du pronotum et des élytres. Robuste, épais. Tête à lobe frontal large, aussi long que large, canaliculé, avec les bourrelets latéraux épais ; yeux aussi longs que la partie postoculaire qui est peu à peu rétrécie ; front profondément excavé entre les yeux et en arrière ; deux tubercules rétrécissent l'excavation entre les yeux. Palpes très longs, le sommet du pédoncule atteignant le milieu du pronotum, massette à funicule plus de deux fois aussi long que le renflement terminal qui est verruqueux et fissuré. Antennes robustes, le scape à peine plus long que large, le pédicelle court, les articles 3 à 6 à peine plus longs que larges, la massue nettement de quatre articles, tous allongés et croissant peu à peu de grosseur. Pronotum un peu plus long que large, ses bosses latérales anguleuses, la base un peu plus large que le bord antérieur, le disque bombé, lisse, le sillon transverse profond. Elytres plus longs que larges, aplanis, les épaules effacées, deux fossettes basales ; bord apical avec une large frange membraneuse surmontée d'un rang de quelques soies. Plaque tergale à peu près deux fois aussi large que longue, élargie en arrière, régulièrement convexe et lisse. Pattes robustes, les tibias postérieurs épaissis dans leur moitié distale.

Edéage oblong, l'orifice apical largement ouvert, avec une grande apophyse fourchue sur le côté gauche. Deux pièces copulatrices, l'une aiguë, l'autre mousse, celle-ci du côté ventral. Pas de styles.

Gen. ***PSELAPHIDIUS*** Jeannel

Pselaphidius Jeannel, 1951, type : *filipalpis* Reitter. 1957, *Rev. fr. d'Ent.* **24** : 25.

Pselaphidius pilicollis Reitter

P. pilicollis Reitter, 1882, type : Batavia. Jeannel, 1957, loc. cit. **24** : 26.

INDE. UNITED PROVINCES. Kumaon : Haldwani distr. (*H. G. Champion*) ; Dehra Dun (*Dr. M. Cameron*). PAKISTAN ORIENTAL : Sarda (*F. W. C.*).

Connu de Sumatra, du Siam et du Tonkin.

Gen. ***MENTRAPHUS*** Sharp

Mentraphus Sharp, 1883, type : *pselaphoides* Sharp. Jeannel, 1957, *Rev. fr. d'Ent.* **24** : 26.

Mentraphus pselaphoides Sharp

M. pselaphoides Sharp, 1883, *Wiener ent. Ztg.* **2** : 226, type : Mésopotamie.

INDE. BIHAR : Ranchi, 4 exemplaires à la lumière (*W. B. R. Laidlaw*).

Espèce de la région méditerranéenne orientale, dont l'aire de répartition s'étend vers l'est jusqu'au Tonkin.

Gen. ***TYRAPHUS*** Sharp

Tyraphus Sharp, 1874, type : *planus* Sharp. Jeannel, 1957, *Rev. fr. d'Ent.* **24** : 25.

Tyraphus pilosus Raffray

T. pilosus Raffray, 1891, *Ann. Soc. ent. France*, **60** : 194 ; type : Tonkin (Mus. Paris).

INDE. BIHAR : Ranchi, un exemplaire à la lumière (*W. B. R. Laidlaw*).

Connu du Tonkin.

Trib. ODONTALGINI Jeannel

Gen. ***ODONTALGUS*** Raffray

Odontalgus Raffray, 1877, type : *tuberculatus* Raffray (Abyssinie).

Genre bien moins riche en espèces dans la Région Orientale que dans l'Afrique intertropicale.

Odontalgus vestitus Schaufuss

O. vestitus L. W. Schaufuss, 1886, type : Sumatra (Mus. Paris).

INDE. UNITED PROVINCES. Kumaon : Haldwani distr., nombreux exemplaires (*H. G. Champion*).

Espèce connue de Saigon, de Sumatra et de Bornéo.

Trib. CTENISTINI Raffray

Gen. *CTENISTES* Reichenbach

Ctenistes Reichenbach, 1816, type : *palpalis* Reichenbach. Jeannel, 1952, *Rev.fr. d'Ent.* **19** : 108.

Ctenistes gracilis sp. n.

(figs. 72 et 73)

INDE. UNITED PROVINCES. Kumaon : Haldwani distr. 2 mâles (dont le type) et une femelle (*H. G. Champion*).

Long. 2 mm. Ailé. Voisin du *mitis* Schaufuss, qui est très largement répandu dans toute l'Indo-Malaisie, depuis le Siam jusqu'à Borneo, mais plus grand et surtout plus grêle et plus allongé. Front moins élargi en arrière, les yeux aussi grands. Antennes moins longues que chez le *mitis*, l'article 9 des antennes du mâle n'est que trois fois aussi long que large, et non quatre fois. Pronotum semblable. Elytres nettement plus longs que larges, alors qu'ils sont aussi longs que larges, avec les côtés plus arqués chez le *mitis*. Abdomen plus allongé, plus parallèle. Pattes très grêles.

Edéage : fig. 73.

Gen. *CTENISTIDIUS* Jeannel

Ctenistidius Jeannel, 1957, *Rev. fr. d'Ent.* **24** : 27 ; type : *coomani* Jeannel. 1959, loc. cit., **26** : 21.

Genre caractérisé par la forme de l'article 10 de l'antenne du mâle, qui est la même que chez les *Ctenisomorphus* et *Ctenisoschema* du Sahara.

Les trois espèces connues du genre *Ctenistidius* se distinguent de la façon suivante.

1. Antennes du mâle à funicule non contracté, les articles 4 à 7 presque aussi longs que larges . . . . **indicus** sp. n.
–. Antennes du mâle à funicule contracté, les articles 4 à 7 très plats 2
2. Massue des antennes du mâle plus courte, l'article 9 de peu plus long que large, plus court que la moitié du 10 (Afganistan) . . . . . . (**lindbergi** Jeann.)
–. Massue des antennes du mâle plus grêle et plus longue, l'article 9 deux fois aussi long que large, aussi long que la moitié du 10 (Tonkin) . . (**coomani** Jeann.)

Ctenistidius indicus sp. n.

(figs. 74 et 75)

INDE. UNITED PROVINCES. Kumaon : Haldwani distr., un mâle (type) à la lumière (*H. G. Champion*).

Long. 2 mm. Ailé. Allongé et grêle. Tête peu longue, le front surélevé entre les yeux, s'élargissant en arrière, les yeux très grands Pronotum assez épais, avec trois gros paquets villeux à la base. Elytres un peu plus longs que larges, aplanis, la frange membraneuse apicale bien développée Abdomen un peu élargi, les tergites convexes Pattes longues et grêles.

Edéage : fig. 75.

Gen. ***PORODERUS*** Sharp

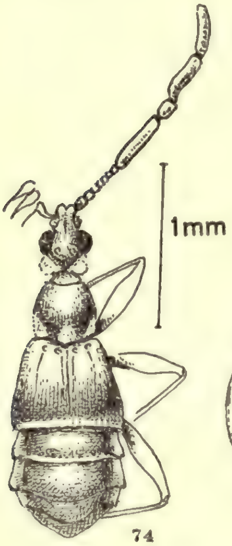
Poroderus Sharp, 1883, type : *armatus* Sharp (Japon). Jeannel, 1958, *Mém. Mus., Zool.* **18** : 114.

Genre avec plusieurs espèces au Japon, connu aussi de la région indo-malaise, au Siam et à Sumatra. Une espèce est décrite de l'Inde, le *P. indus* Raffray de Travancore.

Poroderus cameroni sp. n.

(figs. 76 et 77)

Inde. United Provinces. Kumaon : Dehra Dun, un mâle (type) (*Dr. M. Cameron*) ; Haldwani distr., un mâle (*H. G. Champion*).



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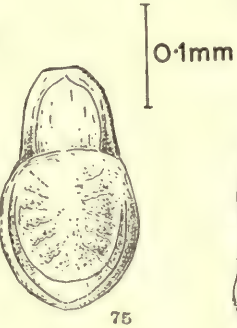

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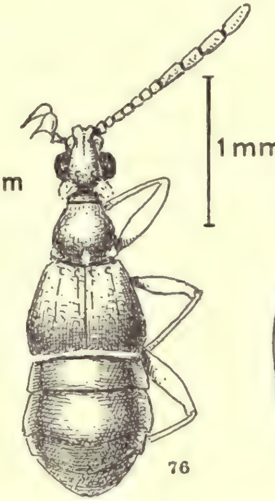

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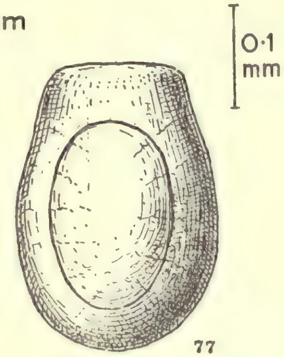

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Figs. 74–75. Gen. *Ctenistidius* Jeann. Fig. 74. *C. indicus* sp. n., mâle, de Haldwani distr., ×22. Fig. 75, Edéage, ×135.

Figs. 76–77. Gen. *Poroderus* Sharp. Fig. 76. *P. cameroni* sp. n., mâle, de Dehra Dun, ×20. Fig. 77, Edéage, ×135.

Long. 2,4 mm. Ailé. Rougeâtre foncé, la pubescence rare. Allongé. Front très large, surélevé, élargi en arrière, les yeux très grands. Palpes maxillaires à pédoncule sans pénicille, l'intermédiaire plus gros que la massette. Antennes courtes et robustes. Pronotum convexe. Elytres à peu près aussi longs que larges. Abdomen élargi, le deuxième tergite plus grand que le premier et très convexe. Pattes longues.

Antennes du mâle : Scape et pédoncule courts, article 3 à peine plus long que les suivants et aussi long que le pédicelle, articles 4 à 7 à peine plus longs que larges, la massue nettement formée de quatre articles croissant peu à peu de grandeur.

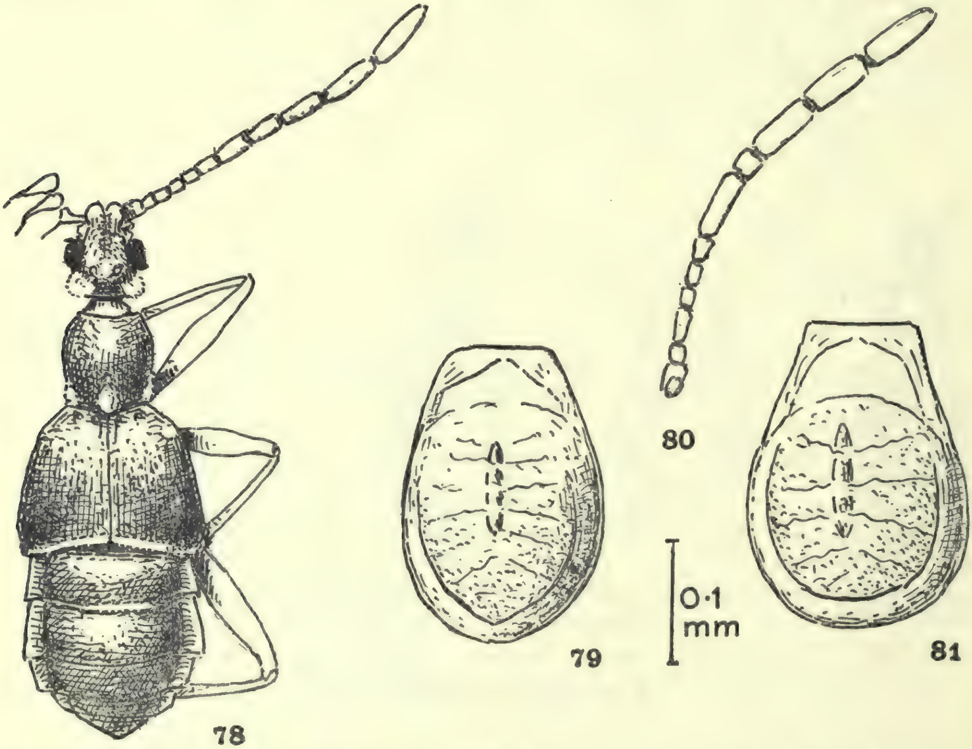
Edéage (fig. 77) très volumineux, sans styles.

Assez voisin de l'*indus* Raffr., de Travancore, mais avec les antennes bien plus courtes et plus épaisses. Chez l'*indus*, les articles 3 à 7 sont environ deux fois aussi longs que larges.

Gen. ***PORODEROPSIS*** nov.

Type : *championi*, sp. n.

Chez les *Poroderus* le pédoncule palpaire ne porte pas de pénicille et d'autre part l'édéage est toujours très volumineux, sans styles ni pièces copulatrices. Le genre nouveau *Poroderopsis* diffère parce que le pédoncule palpaire est pénicillé et que l'édéage, de dimension moyenne comme chez les *Ctenistes*, renferme une pièce copulatrice.



Figs. 78–81. Gen. *Poroderopsis* nov. Fig. 78, *P. championi* sp. n., mâle, de Haldwani distr., ×35. Fig. 79, Edéage, ×160. Fig. 80, Antenne droit du mâle de *P. butleri* sp. n., de Nandidrug. Fig. 81. Edéage du *P. butleri*, ×160.

Sans doute, le *P. mimeticus* Sharp, du Japon, placé avec doute dans le genre *Poroderus* (Jeannel, 1958, *Mém. Mus., Zool.* **18** : 116) devra-t-il être rangé dans le nouveau genre.

Deux espèces de l'Inde y figurent.

Poroderopsis championi sp. n.

(figs. 78 et 79)

INDE. UNITED PROVINCES. Kumaon : Haldwani distr., 2 mâles (dont le type), à la lumière (*H. G. Champion*).

Long. 2 mm. Ailé. Rougeâtre foncé, la pubescence assez fournie, formée de poils squameux appliqués. Robuste. Tête courte, le front élargi en arrière, surélevé, sillonné dans sa partie antérieure, les yeux très grands. Intermédiaire et massette palpaires peu volumineux. Antennes longues et grêles. Pronotum bombé, large en avant. Elytres courts. Abdomen allongé, les tergites peu convexes. Pattes grêles.

Antennes du mâle : Scape plus long que le pédicelle ; articles 3 et 4 aussi longs que larges, les 5 à 11 croissant peu à peu de longueur et d'épaisseur, le 8 toutefois un peu moins long que le 7.

Edéage : fig. 79.

Poroderopsis butleri sp. n.

(figs. 80 et 81)

INDE. MYSORE : Nandidrug, un mâle (type) (*T. V. C.*, in coll. Butler).

Long. 2,4 mm. Ailé. Rougeâtre foncé, la pubescence assez fournie. Plus large que le précédent. Tête semblable, mais avec les yeux plus grands. Palpes aussi petits, le pédoncule pénicillé. Antennes très longues mais épaisses. Pronotum dolioliforme. Elytres et abdomen relativement larges.

Antennes du mâle (fig. 80) longues et épaisses. Pédicelle pas plus long que large, l'article 3 deux fois plus long que lui, plus long que le 4 ; articles 4 à 6 un peu plus longs que larges, le 7 de moitié plus long que le 6, le 8 court, pas plus long que le tiers du 7, les 9, 10 et 11 plus longs que le 7 et plus épais.

Edéage : fig. 81.

Trib. TMESIPHORINI Jeannel

Gen. ***TMESIPHORUS*** Leconte

Tmesiphorus Leconte, 1850 ; type : *carinatus* Leconte (Amérique du Nord). Jeannel, 1958, *Mém. Mus., Zool.* **18** : 118.

Les espèces de ce genre sont assez nombreuses dans l'Inde et seront réparties dans plusieurs groupes.

TABLEAU DES ESPÈCES DE L'INDE

1. Abdomen avec des carènes sur les trois premiers tergites : trois carènes sur les deux premiers, une carène médiane sur le troisième. (Groupe du *clavatus*) . . 2

–. Abdomen avec des carènes sur les deux premiers tergites seulement : trois carènes sur le premier, deux sur le deuxième. (Groupe du *brevipennis*) 4

–. Abdomen avec des carènes sur le premier tergite seulement. (Groupe du *squamosus*, assez nombreux en Malaisie, mais non représenté dans l'Inde). . . . . .

Groupe du *clavatus*

2. Téguments très densement ponctués sur tout le corps, les tergites ponctués comme le pronotum ; bosses latérales du pronotum anguleuses. Long. 2,5 mm. 2. ***andrewesi*** sp. n.

–. Téguments ponctués sur la tête et le pronotum, lisses sur les élytres et l'abdomen . 3

3. Plus grand. Pronotum à bosses latérales saillantes, les côtés sinués en arrière, le disque aplani. Long. 2,4 mm. . . . . 1. ***championi*** sp. n.

–. Plus petit. Pronotum à bosses latérales plus arrondies, les côtés à peine sinués, le disque bossu. Long. 2 mm. (Singapore) . . . . . . (***clavatus*** Raffr.)

Groupe du *brevipennis*

4. Ponctuation de l'avant-corps et des élytres forte et très serrée. Antennes à massue épaisse. Carène médiane du premier tergite entière. Long. 2,4 mm. 3. ***nitens*** sp. n.

–. Ponctuation de l'avant-corps moins dense. Antennes à massue peu épaisse. Carène médiane du premier tergite en partie effacée 5

5. Carène médiane du premier tergite saillante sur la moitié postérieure, effacée en avant. Forme plus étroite. Long. 2,5 mm. . . . . . . 4. ***iyeri*** sp. n.

–. Carène médiane du premier tergite presque nulle, marquée seulement par une saillie médiane du bord postérieur. Forme plus large, les bosses latérales du pronotum plus saillantes. Long. 2,5 mm. . . . . . . 5. ***brevipennis*** sp. n.

Group du clavatus

1. ***Tmesiphorus championi*** sp. n.

(figs. 82 à 84)

INDE. PUNJAB ORIENTAL : Gahan, alt. 2,200 m. env., un mâle (type) (*Dr. M. Cameron*). UNITED PROVINCES. Kumaon : W. Almora (*H. G. Champion*).

Long. 2,4 mm. Brun de poix luisant, presque glabre. Tête médiocre, le front densement ponctué, le lobe frontal quadrangulaire, profondément excavé ; yeux petits, plus courts que les tempes, l'épine sous-oculaire courte. Antennes épaisses, la massue très renflée chez le mâle (figs. 82 et 83), l'article 10 plus large que ses deux voisins. Pronotum fortement et peu densement ponctué, les bosses latérales saillantes, le disque aplani. Elytres courts, éparsement ponctués, d'aspect luisant. Abdomen lisse et luisant, les deux premiers tergites avec trois carènes, le troisième avec une carène médiane, tout au moins chez le mâle. Pattes robustes.

Mâle. Massue très épaisse, l'article 9 court, globuleux, denté en dessous, le 10 très large, transverse, bidenté en dessous, le 11 ovoïde, avec une dent basale en dessous.

Edéage (fig. 84) à orifice apical encadré par deux cornes divergentes. Deux pièces copulatrices, la droite très longue.

Tmesiphorus andrewesi sp. n.

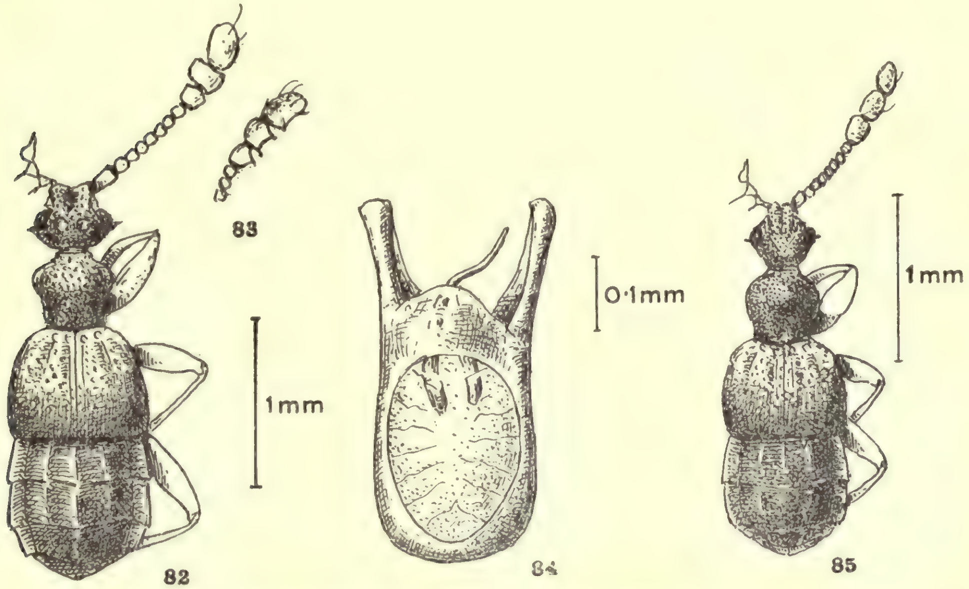
(fig. 86)

INDE. MADRAS : Nilgiri Hills, une femelle (type) (*H. L. Andrewes*).

Long. 2,5 mm. Bien différent du précédent par sa forte ponctuation très dense et miroitante sur tout le corps. Brun de poix, la pubescence réduite. Tête médiocre.

Antennes longues et épaisses, à massue allongée chez la femelle, l'article 10 bien plus long et plus épais que le 9. Pronotum très densement ponctué, à bosses latérales anguleuses. Elytres à ponctuation plus grossière que celle du pronotum, mais aussi dense. Abdomen à ponctuation aussi dense que celle du pronotum. Mêmes carènes que chez les *championi* et *clavatus*, et aussi que chez les espèces de l'Afrique Orientale, comme *collaris* Raffr. ou *rugicollis* Raffr.

Mâle inconnu.



FIGS. 82–85. Gen. *Tmesiphorus* lec. Fig. 82, *T. championi* sp. n., mâle, de W. Almora, ×22. Fig. 83, Sommet de l'antenne du même, de profil. Fig. 84, Edéage, face dorsale, du *T. championi* sp. n., de W. Almora, ×95. Fig. 85, *T. nitens* sp. n., femelle, des Nilgiri Hills, ×22.

Groupe du brevipennis

Tmesiphorus nitens sp. n.

(fig. 85)

INDE. MADRAS : Nilgiri Hills, un exemplaire (peut-être mâle) en très mauvais état (type) (coll. Bryant).

Long. 2,4 mm. Coloration foncée, la pubescence très réduite. Même ponctuation très serrée et miroitante que chez le précédent, mais bien différent par plusieurs points. Tête médiocre, les yeux bien moins saillants, plus courts que les tempes, l'épine sous-oculaire plus courte. Antennes robustes, á massue allongée, mais avec l'article 9 long, aussi grand que le 10. Pronotum subglobuleux, sans bosses latérales, très densement ponctué. Elytres à ponctuation plus grosse que celle du pronotum.

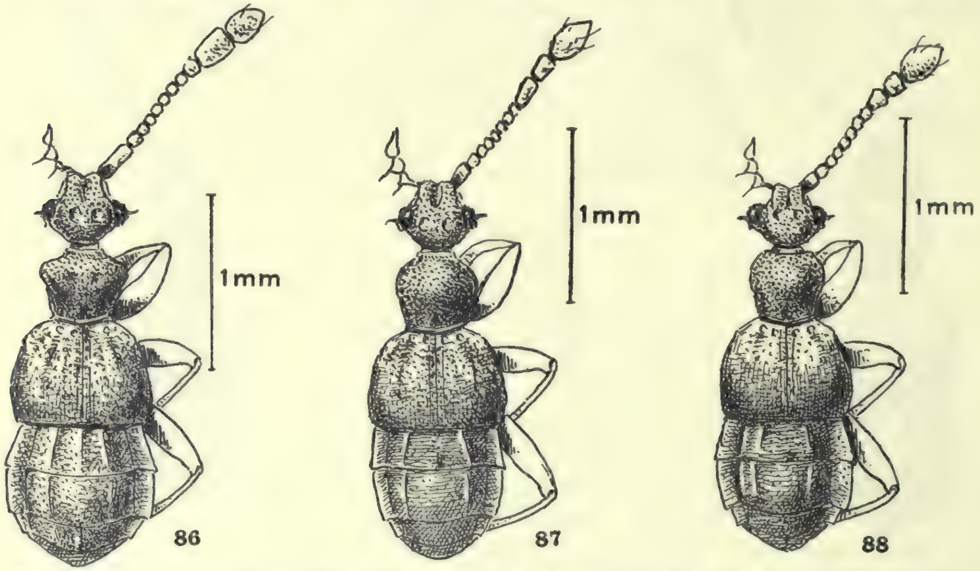
Abdomen très densement ponctué, le premier tergite avec trois carènes entières, le deuxième avec deux carènes, sans carène médiane.

Tmesiphorus iyeri sp. n.

(fig. 87)

INDE. UNITED PROVINCES. Kumaon : Dehra Dun, 2 femelles (dont le type) (*Iyer*, in coll. Raffray) ; W. Almora, Kheri forest, 2 femelles (*H. G. Champion*).

Long. 2,5 mm. Rougeâtre luisant. Voisin du précédent, avec la même ponctuation, mais avec une pubescence squameuse appliquée très courte. Etroit et allongé.



FIGS. 86–88. Gen *Tmesiphorus* Lec. Fig. 86, *T. andrewesi* sp. n., femelle, de Nilgiri Hills, × 23. Fig. 87, *T. iyeri* sp. n., femelle, de Kheri forest, × 23. Fig. 88, *T. brevipennis* sp. n., femelle, de Nilgiri Hills.

Tête médiocre, les yeux peu saillants. Antennes à scape court et massue à peine renflée, les articles 9 et 10 allongés, le 11 ovale, plus épais que le 10. Pronotum à bosses latérales arrondies, peu saillantes, les côtés non sinués en arrière, le disque très bombé. Elytres courts. Carène médiane du premier tergite saillante seulement dans sa moitié postérieure, effacée en avant.

Mâle inconnu.

Tmesiphorus brevipennis sp. n.

(fig. 88)

INDE. MADRAS : Nilgiri Hills, plusieurs femelles (dont le type) (*H. L. Andrewes* et *A. K. Neld Downing*).

Long. 2,5 mm. Rougeâtre luisant, voisin du précédent, avec la même ponctuation, mais de forme générale plus large. Tête semblable. Antennes aussi longues, á scape très court et massue peu épaisse ; chez la femelle les articles 9 et 10 sont plus courts, pas plus longs que larges. Pronotum à bosses latérales plus saillantes, les côtés un peu sinués en arrière, le disque aussi hautement bombé. Elytres et abdomen semblables, sauf qu'il n'existe pas d'autre trace de la carène médiane qu'un petit tubercule sur le bord postérieur.

Mâle inconnu.

Trib. TYRINI Raffray

Gen. *LABOMIMUS* Sharp

Labomimus Sharp, 1883 ; type : *reitteri* Sharp (Japon). Jeannel, 1958, *Mém. Mus., Zool.* **18** : 120.

Tableau des Espèces

1. Pronotum convexe, non caréné sur la ligne médiane, fortement ponctué latéralement, mais non sur le milieu du disque. Premier tergite abdominal avec deux rudiments de carènes à la base. Long. 3,5 mm. (Japon) . . . . . . (***reitteri*** Sharp)

–. Pronotum fortement caréné, la carene saillante en arrière au dessus de la fovéole basale ; ponctuation uniforme. Premier tergite avec deux carénules espacées de plus du tiers de la largeur du disque. 2

2. Carène pronotale double, divisée par un large sillon médian. Articles 9 et 10 des antennes du mâle épais, pas plus longs que larges. Long. 3,5 mm. 1. ***cameroni*** sp. n.

–. Carène pronotale simple, quoique avec un fin sillon médian 3

3. Plus épais, le fin sillon médian du pronotum à peine visible. Elytres amples, moins longs que larges, à côtés arrondis. Articles 9 et 10 des antennes du mâle nettement plus longs que larges. Long. 3,5 mm. . . . . . . 2. ***championi*** sp. n.

–. Plus étroit, le sillon médian du pronotum mieux tracé. Elytres aussi longs que larges, à côtés peu arqués. Article 9 des antennes du mâle plus long que large, le 10 aussi long que large. Long. 3,5 mm. . . . . 3. ***harmandi*** Raffr.

1. *Labomimus cameroni* sp. n.

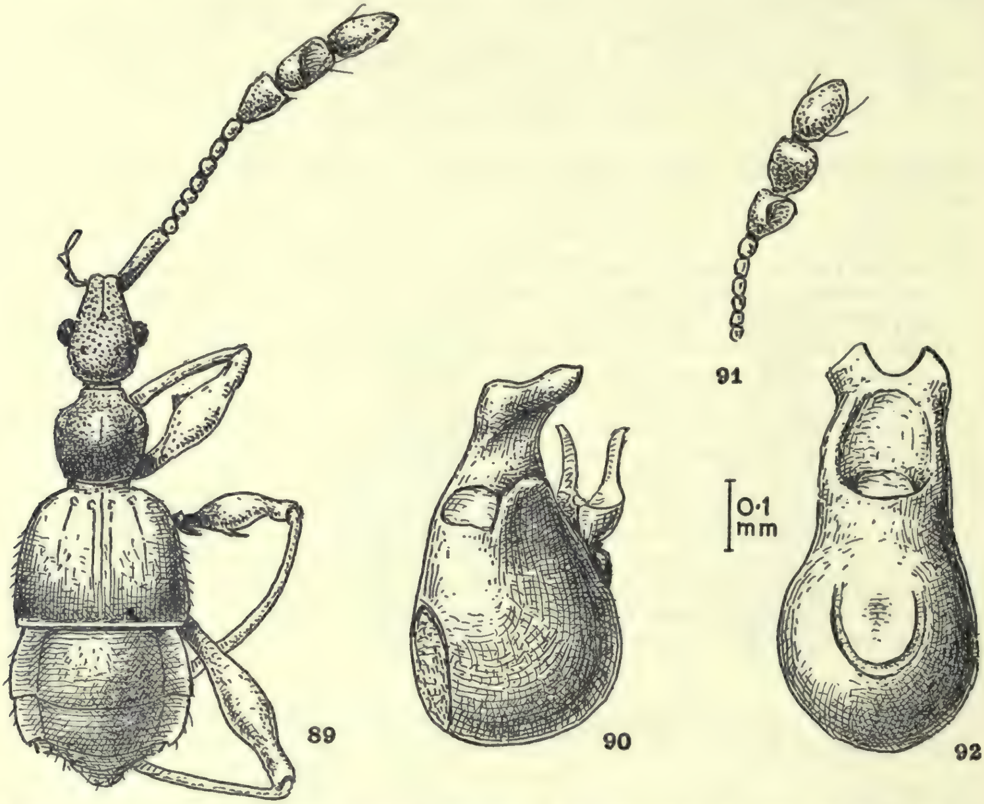
(figs. 91 et 92)

Inde. Bengale Occidental : Darjeeling, mâle (type) et femelle (*Dr. M. Cameron*).

Long. 3,5 mm. Testacé rougeâtre, la pubescence dorée, courte et couchée, très dense sur l'avant-corps et les élytres. Tête allongée, le front large et peu convexe, arrondi en arrière, les yeux bien plus courts que les tempes, qui sont arrondies et présentent une tubérosité en dessous des yeux. Antennes longues et épaisses, le scape quatre fois aussi long que large, le pédicelle et l'article 3 plus longs que larges, le funicule relativement grêle. Pronotum presque aussi long que large, à base large et bosses latérales très petites et peu saillantes, le disque bossu, avec une large gouttière médiane entre deux carènes qui s'effacent en avant et en arrière. Elytres courts, avec deux côtes discales. Abdomen plus large que les élytres, les tergites largement rebordés, plans, le premier plus grand que le deuxième, avec deux petites carénules basales espacées de plus du tiers de la largeur du disque. Pattes longues et très robustes, les épines des trochanters intermédiaires et des fémurs antérieur et intermédiaires très aiguës.

Mâle. Massue antennaire renflée, l'article 9 aussi long que large, triangulaire, avec une fosse sur la moitié distale, l'article 10 de même dimension, mais plus arrondi, avec une fosse à la base, le 11 ovale, pas plus long et moins épaie que le 10 (fig. 91).

Edéage (fig. 92) piriforme, atténué dans sa partie distale qui est bilobée au dessus de l'orifice apical. Pas de styles.



Figs. 89–92. Gen. *Labomimus* Sharp. Fig. 89. *L. championi* sp. n., mâle, de Haldwani distr., ×20. Fig. 90. Edéage, de trois quarts, ×80. Fig. 91, Sommet de l'antenne du mâle de *L. cameroni* sp. n., de Darjeeling. Fig. 92, Edéage du *L. cameroni*, face dorsale, ×80.

2. ***Labomimus championi*** sp. n.

(figs. 89 et 90)

Inde. United Provinces. Kumaon : Haldwani distr., mâle (type) et femelle (*H. G. Champion*).

Long. 3,5 mm. Testacé rougeâtre, la pubescence moins dense que chez le précédent. Tête semblable, les tempes longues et arrondies. Antennes longues, à funicule bien plus épais que chez le *cameroni*. Pronotum aussi long que large, arrondi et large en arrière, les bosses latérales à peine saillantes ; disque bossu, densement ponctué, avec un très fin sillon sur le versant antérieur de la bosse discale. Elytres courts et amples, avec deux carènes. Abdomen comme chez le *cameroni* ; pattes semblables.

Mâle. Massue antennaire peu tranchée (fig. 89), l'article 9 plus long que large, non dilaté, sans fosse ; article 10 plus long que large, rectangulaire, avec une vaste fosse sur sa moitié distale ; article 11 allongé, aussi long et épais que le 10.

Edéage (fig. 90) ovoïde, avec la partie distale, au delà de l'orifice apical, en forme d'apophyse comprimée latéralement. Deux grands styles lamelleux, sans soies.

3. ***Labomimus harmandi*** Raffray

L. harmandi Raffray, 1904, *Ann. Soc. ent. France*, **73** : 382, fig. 110 ; type : Sikkim (Mus. Paris).

SIKKIM : Mâle et femelle (*J. Harmand*).

Long, 3,4 mm. Forme générale très grêle. Tête courte, avec les tempes relativement courtes et nettement anguleuses. Antennes longues, à funicule grêle comme chez le *cameroni*. Pronotum de forme subhexagonale, c'est-à-dire les bosses latérales saillantes, la base rétrécie ; disque uniformément ponctué, caréné, sa bosse discale avec un fin sillon étendu sur toute la longueur. Elytres longs, à côtés peu arqués, étroits aux épaules. Abdomen très ample.

Mâle. Massue antennaire épaisse, l'article 9 conique, plus long que large, le 10 subcarré, aussi long que large, le 11 aussi long et large que le 10.

Raffray ne signale pas de fosses sur les articles de la massue. Malheureusement, je n'ai pas pu voir les types, qui sont certainement au Muséum, mais ont été égarés.

Gen. ***TYRODITES*** nov.

Type : *championi* sp. n.

Genre voisin de *Tyrodes* Raffray (type : *histrio* Schauf.), mais différent par la forme des palpes et par celle de l'édéage.

Palpes maxillaires plus longs et plus grêles que ceux des *Tyrodes*, l'intermédiaire plus allongé, plus longuement pédonculé, la massette longue et cambrée, son bord externe concave et son extrémité atténuée ; article distal très court. Chez les *Tyrodes* la massette est régulièrement fusiforme et l'article distal, subulé, est presque aussi long que le tiers de la massette. D'autre part, comme chez les *Tyrodes*, le scape antennaire est fortement denté sur sa face externe.

Edéage (Text-figs. 94 et 95) bien plus court que celui des *Tyrodes*, globuleux, très largement cuvert, avec la lame distale très rétrécie.

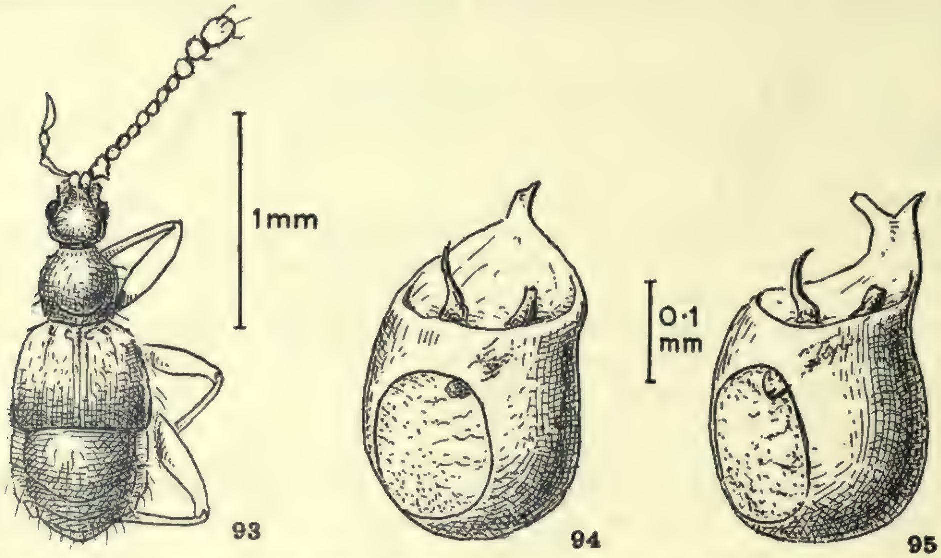
Tyrodites championi sp. n.

(fig. 93 à 95)

INDE. UNITED PROVINCES. Kumaon ; W. Almora, un mâle (type) (*H. G. Champion*). BENGALE OCCIDENTAL : Darjeeling, un mâle (*Dr. M. Cameron*).

Long. 1,8 mm. Ailé. Testacé rougeâtre, la pubescence longue et dense. Allongé et délié. Tête petite, le lobe frontal étroit, le front aplani, les yeux plus courts que les tempes. Antennes assez longues, la massue de trois articles. Pronotum subglobuleux. Elytres peu renflés, aussi longs que larges ; deux fossettes basales, la strie discale présente. Premier tergite abdominal un peu plus grand que le deuxième, tous deux très développés, largement rebordés et à disque convexe. Pattes grêles.

Mâle. Scape antennaire denté. Tibias intermédiaires avec une très petite dent distale interne.



Figs. 93–95. Gen. *Tyrodites* nov. Fig. 93, *T. championi* sp. n., mâle, de W. Almora, × 24. Fig. 94, Edéage, face dorsale du même, × 110. Fig. 95, Edéage, face dorsale, d'un exemplaire de Darjeeling, × 110.

Edéage (Text-figs. 94 et 95) globuleux, l'orifice apical très large, la lame distale très rétrécie. Pas de styles. Sac interne avec deux pièces copulatrices, la gauche mousse, la droite effilée en pointe.

Le mâle de W. Almora (forme typique) a la lame distale de l'édéage (Text-fig. 94) terminée en pointe aiguë, tandis que chez l'exemplaire de Darjeeling la lame distale est plus large et bifide (Text-fig. 95). Il ne semble pas qu'il faille voir là autre chose qu'une variation individuelle.

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Xu/8.

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ON THE SYNONYMY OF SOME *ZYGAENA* SPECIES, WITH DESCRIPTIONS OF A NEW SPECIES AND SUBSPECIES FROM MOROCCO, LEP., ZYGAENIDAE

By HUGO REISS & W. GERALD TREMEWAN

WHILE on a visit to England, the senior author (H. R.) brought many types and cotypes of the genus *Zygaena* F. from his collection to compare with the types and other material in the collections of the British Museum (Natural History). The comparison of types has shown that many species, recently treated as subspecies by continental workers, are indeed good species. Through the course of our work new synonymy was discovered : this is discussed in detail below.

Subgenus ***MESEMBRYNUS*** Hübner

Zygaena rubricollis Hampson

Zygaena rubricollis Hampson, 1900, *J. Bombay nat. Hist. Soc.* **13** : 224, pl. B, fig. 9.

This species was described from a single female from the Shishi Kuh Valley, Chitral and is a species distinct from *manlia* Lederer as stated by Holik & Sheljuzhko (1954).

Zygaena afghanica Reiss

Zygaena rubricollis ssp. *afghanica* Reiss, 1940, *Ent. Z.* **54** : 105.

The genitalia of the type ♀ of *afghanica* were examined and compared with those of *rubricollis* Hamps. and we consider them to be distinct species. Holik & Sheljuzhko (1954) stated that *afghanica* undoubtedly belonged to *manlia* Led. and have treated it as a subspecies of that species. This is incorrect.

Zygaena manlia Lederer

Zygaena Manlia Lederer, 1869, *Horae Soc. ent. ross.* **6** : 87, pl. 5, fig. 7.

A female specimen of *manlia* was examined and the genitalia compared with those of the types of *rubricollis* Hamps. and *afghanica* Reiss. Alberti (1958) considered *rubricollis* to be a subspecies of *manlia*. This is incorrect as we found slight differences in the genitalia. The specimen of *manlia* that we examined is from the Zeller collection and is undoubtedly an authentic specimen and one that we believe Zeller received from Lederer. It has the following data: "Zyg. manlia Astrabad Led. lit. 11/69".

Regarding *hindukuschi* Koch, which Alberti (1958) treats as a subspecies of *manlia*, we are not prepared to comment. Holik & Sheljuzhko (1954) regard it as a separate species, but one that is closely related to *manlia*.

Zygaena smirnovi Christoph

Zygaena smirnovi Christoph, 1884, in Romanoff, *Mémoires sur les Lépidoptères*, **1** : 108.

A male cotype from the Christoph collection, labelled "J Nuchur" and a further male from the Reiss collection labelled "Smirnovi 1897 Chr. Askhabad" were examined. The genitalia of *smirnovi* differ considerably from those of *purpuralis* Brünnich and *diaphana* Staudinger and we think it better to treat it as a good species. It is considered to be a good species by Holik & Sheljuzhko (1953) but Alberti (1958) regards it as a subspecies of *purpuralis*. His illustrations of the genitalia of *smirnovi* do not agree with the genitalia of the cotype that we have examined, and we think that the specimens he illustrates are a subspecies of *purpuralis*.

In the original description of *smirnovi*, Christoph stated that the species was found in small numbers, usually at rest on the stems of *Eryngium* which could possibly be the foodplant.

Zygaena purpuralis Brünnich ssp. ***barthai*** Reiss

Zygaena purpuralis ssp. *barthai* Reiss, 1929, *Int. ent. Z.* **23** : 148.

A male and a female, labelled "Asia min. c. Anatolia c. Aksehir Sultan Dagh 2200 m. vii. 34. coll. E. Pfeiffer, München" were dissected and the genitalia show that *barthai* is undoubtedly a subspecies of *purpuralis*.

Zygaena diaphana Staudinger ssp. ***clavigera*** Burgeff

Zygaena purpuralis var. *clavigera* Burgeff, 1914, *Mitt. münchen. ent. Ges.* **5** : 44.

The genitalia of a male cotype, labelled "Akbès, Syria", ex. coll. Burgeff, were examined and compared with the genitalia of an original specimen of *diaphana* Stdgr. (ex. Zoologisches Museum, Berlin). It was found that *clavigera* is conspecific with *diaphana*; it should now be treated as a subspecies of that species. Alberti (1958) separates *diaphana* Stdgr. as a good species from *purpuralis* Brünn., with which we agree. Holik & Sheljuzhko (1953) have kept all the subspecies of *diaphana* and *purpuralis* under one species. However, as there are good differences in the genitalia of some of the subspecies, which fall naturally into two groups, we feel justified in separating them into two species. The *purpuralis-diaphana* complex is one of the most difficult groups in the genus but we believe that if a complete knowledge of the biology of the insects were known the problem would be greatly simplified.

Zygaena diaphana Staudinger ssp. ***chamurli*** Koch

Zygaena purpuralis ssp. *chamurli* Koch, 1934, *Iris.* **48** : 192.

A male labelled "Armenia, Khashkhash-Dagh, Geröll-Südabhang. 3200 m. 1–10. 7. leg. Kotzsch 1934 ", was examined and the genitalia agree with those of *diaphana*. According to Koch, the specimens from Khashkhash-Dagh are smaller than the nominate race from Chamurli Dagh.

Zygaena diaphana Staudinger ssp. ***martirosensis*** Koch

Zygaena purpuralis ssp. *martirosensis* Koch, 1942, *Iris.* **56** : 95.

A male cotype labelled " Armenia ross. Martiros, 1800 m. Mai " was examined and the genitalia agree with those of *diaphana* Stdgr.

Subgenus ***AGRUMENIA*** Hübner

Zygaena afghana Moore

Zygaena afghana Moore, 1858/9, *Cat. Lep. East-Indian Mus.* **2** : 286, pl. 7A, fig. 1.

The type of this species is badly faded, but an examination of the genitalia showed this species to be distinct from *mangeri* Burgeff. Compared with this species, *afghana* is much paler and with the red of a light carmine or yellowish-pink, according to fresh material in the British Museum with data as follows : " AFGHANISTAN : Arbarp. 10 miles W. of Kabul. 27.vi.1939. J. L. Chaworth-Musters B.M. 1946 : 72. " The genitalia of the males of *afghana* and *mangeri* are similar but the horns of the uncus of *mangeri* are more pointed and rather longer. The female genitalia have quite good differences. In *afghana*, the ostium is broad and the ductus bursae is straight. In *mangeri* however, the ostium is narrower and the ductus bursae has a constriction on one side, just below the ostium, and another a third of the way from the ostium.

Zygaena mangeri Burgeff

Zygaena mangeri Burgeff, 1927, in *Bang-Haas, Hor. Macrolep.* **1** : 55.

As stated above, *mangeri* is a species distinct from *afghana*. Alberti (1958) considered them to be conspecific and had seen the type of *afghana* in the British Museum. Apparently however, he had not compared the genitalia of *afghana* with those of *mangeri*. Holik & Sheljuzhko (1956) correctly treated them as separate species. Two cotypes of *mangeri*, a male and a female from the Reiss collection, were compared with the type and fresh material of *afghana*. The data of *mangeri* is as follows ; " Paghman Gbg, Kabul, Afghanistan "

Zygaena rothschildi Reiss

Zygaena rothschildi Reiss, 1930, *Seitz, Suppl.* **2** : 22.

This species, which Alberti (1958) suggested might be a subspecies of *magiana* Stdgr., is undoubtedly a good species. The genitalia of the type were examined and found to differ greatly from those of *magiana*. In *rothschildi*, the horns of the uncus are longer and more slender, while in *magiana* and its ssp. *hissariensis* Gr.-Gr., these horns are short and thick. In *rothschildi*, the aedoeagus is longer and the dorsal rasp (lamina dorsalis) is narrower than that in *magiana*. Holik & Sheljuzhko (1956) treat *rothschildi* correctly as a good species.

Zygaena rothschildi Reiss ab. **latecincta** ab. nov.

♂. 27 mm. Head, thorax and abdomen black. Thorax with faint trace of scarlet on the sides of the pronotum. Abdomen with traces of a scarlet belt. Legs yellowish-brown mixed with black.

Fore wings black; spots 1 and 2 scarlet and confluent, spot 2 edged with pale yellow. Spots 3, 4 and 5 separate, scarlet in colour and widely ringed with pale yellow. Spot 6 scarlet, lower half pale yellow. Hind wings scarlet with blue-black border, wide at the apex and middle of termen, terminating at the tornus. Cilia of fore wings brown. Cilia of hind wings dark purplish-brown.

Holotype ♂. "Ulaxs capa 24.vii.92"; "Mtes Hissar:"; "R.Yagnob."; "Coll. Groum-Grschimailo." ex. Rothschild collection.

The holotype is in the British Museum collections.

This, the second specimen of *rothschildi*, differs superficially from the type and we describe it as an aberration. Whether this form is a true aberration and the type the normal form we do not know.

Zygaena rothschildi Reiss ssp. **nuksanensis** Koch

Zygaena nuksanensis Koch, 1937, *Ent. Z.* **51** : 61.

Alberti (1958) and Holik & Sheljuzhko (1956) treated *nuksanensis* as a good species, but none of them had seen the type of *rothschildi*. We were able to compare a male cotype of *nuksanensis* from the Reiss collection with the type of *rothschildi*, and on comparing the genitalia, we found them to be conspecific. The data of the *nuksanensis* is as follows: "Nord-Ost-Hindukush Nuksan-Pass-Nordseite Alpenwiesenzone 3500–4000 m. Mitte Juli leg. H. & E. Kotzsch 1936."

Zygaena rothschildi Reiss ssp. **andarabensis** Koch

Zygaena nuksanensis ssp. *andarabensis* Koch, 1938, *Ent. Z.* **51** : 399.

This subspecies was originally described by the author as a subspecies of *nuksanensis*. Holik & Sheljuzhko (1956) have also treated it as a subspecies of *nuksanensis*. We have not been able to examine material of *andarabensis*, but if it is conspecific with *nuksanensis*, it must now be treated as a subspecies of *rothschildi*. Alberti (1958) figures the genitalia of *andarabensis* and his illustration agrees completely with the genitalia of the type of *rothschildi*.

Zygaena excelsa Rothschild

Zygaena marcouna (*sic*) *excelsa* Rothschild, 1917, *Novit. zool.* **24** : 340.

This species was described by Rothschild as a subspecies of *marcuna* Oberthür, but on comparing the genitalia of the type with the genitalia of the lectotype of *marcuna*, we found that *excelsa* is a distinct species. It is however, more closely related to *alluaudi* Oberthür. Differences in the genitalia were found to be constant. In the aedoeagus of *excelsa*, the ventral rasp (lamina ventralis) is narrower than that in *marcuna* and the spines are longer. In the female genitalia of *excelsa*, the ostium is narrower than the ostium in *marcuna* and the sclerotization extends further down into the ductus bursae.

The species was described from the Djebel Mekter.

Zygaena alluaudi Oberthür

Zygaena Alluaudi Oberthür, 1922, *Lép. Comp.* **19** : 159, pl. 545, figs. 4583, 4584.

This species was placed as a subspecies of *excelsa* by the senior author (Reiss, 1930), but a comparison of the types has shown that *alluaudi* is a good species. In the male genitalia of *alluaudi*, the lamina ventralis of the aedoeagus is narrower with long, heavily sclerotized spines, while in *excelsa* the lamina ventralis is broader with shorter spines. The female genitalia of the two species are similar, but the ostium of *alluaudi* is rather smaller than the ostium of *excelsa*.

The species was described from Bou Angher. The specimen figured on the accompanying plate is designated a lectotype.

Lectotype ♂. " Bou Angher 2000 m Alluaud 82 " ; " Zygaena alluaudi n. sp. " ; " coll. Ch. Oberthür. ". ex. Rothschild collection.

Zygaena marcuna Oberthür

Zygaena marcuna, (Stdgr. in litteris) Oberthür, 1888, *Etud. d'Ent.* **12** : 27.

As shown above, *marcuna* is distinct from *excelsa*, and is also a different species from *alluaudi* as treated by Alberti (1958).

Oberthür described *marcuna* from Lambessa. The specimen figured on the accompanying plate is designated a lectotype.

Lectotype ♂. " Marcuna Stgr Lambèze Staud. 1887 Marcouna, mi mai " ; " 4/5 " ; " Etud. d'Entom. XIIIe liv'on pl. 7. fig. 58. " On the reverse side of the latter label is a photograph of the specimen " coll. Ch. Oberthür. " ex. Rothschild collection.

Zygaena orana Duponchel ssp. **hajebensis** ssp. nov.

Zygaena orana ssp. *media* Rothschild, Reiss nec Rothschild, 1930, *Seitz, Suppl.* **2** : 26.
Zygaena orana var. *rothschildiana* Reiss, 1930, *Seitz, Suppl.* **2** : 26 (*partim*).

♂. 23 mm. Head, thorax and abdomen black. Antennae black. Legs black with faint traces of brown.

Fore wings black with bluish-green sheen. Spots clear scarlet, narrowly encircled with cream. Spot 6 without a cream ring. Hind wings clear scarlet with a fairly wide blue-black border, widest at apex and middle of termen, becoming narrow along the inner margin. Underside like the upperside but without the cream rings around the spots.

♀. 25 mm. Coloration as in the male, but spots larger and more strongly encircled with cream ; a trace of cream around spot 6. Legs light brown mixed with black.

Holotype ♂. " El Hajeb, W. slopes of Middle Atlas, Maroc, 17.iv.1929. (E. Hartert). " ex. Rothschild collection.

Allotype ♀ with the same data as the holotype.

Paratypes : 19 ♂ and 3 ♀ with the same data as the holotype ; 1 ♂ and 2 ♀ " El Hajeb, Mittel Atlas, 900–1000 m., 16.4.1929 leg. Ungemach (Museum Paris) " ; 1 ♂ " Ain Leuh, südlich El Hajeb, 1600–1700 m., 22.5.1924, leg. Ungemach ".

Further specimens from El Hajeb and Ain Leuh are to be found in the Paris Museum. The holotype, allotype and 20 paratypes are in the British Museum collection, 6 paratypes are in collection Reiss.

Zygaena youngi Rothschild

Zygaena youngi Rothschild, 1925, *Bull. Soc. Sci. nat. Maroc.* **5** : 338.
Zygaena orana media Rothschild, 1925, *Bull. Soc. Sci. nat. Maroc.* **5** : 338.
Zygaena orana var. *rothschildiana* Reiss, 1930, *Seitz, Suppl.* **2** : 26 (*partim*), (new name for *media* Roths. [preoccupied].).

The types of *youngi* and *media* have been examined and found to be conspecific. They were both described on the same page, *media* having been described first. The name *rothschildiana* was applied to *media* Rothschild, which is preoccupied by *media* Reiss, but as *media* Roths. was invalid at the time of publication, then only *youngi* can be taken as the valid name.

When the name *rothschildiana* was published in 1930 (Reiss, 1930), the author did not have the type of *media* before him and the specimens he had were indeed a true subspecies of *orana*. This subspecies of *orana*, which until now has been known under the names of *media* Roths. and *rothschildiana* Reiss, is undescribed and we have described it above as new.

Zygaena harterti Rothschild

Zygaena harterti Rothschild, 1925, *Bull. Soc. Sci. nat. Maroc.* **5** : 338.

The genitalia of the types of *harterti* and *youngi* have been compared and we consider them to be distinct species. Rothschild described *harterti* from seven specimens taken at Azrou at 1,300 m.; *youngi* was described from a single male taken above Azrou at 1,800 m. As stated above all the specimens of *media* were *youngi*, and although taken at a different locality, viz. Lake Sidi Ali and Aghbalu Larbi, we consider them to be the nominate race. Alberti (1958) considered *youngi* and *harterti* to be conspecific and placed them as subspecies of *maroccana* Roths.; with this we do not agree. The female genitalia of *youngi* and *harterti* have been compared with the genitalia of the type of *maroccana* and found to be different.

Zygaena maroccana Rothschild

Zygaena carniolica maroccana Rothschild, 1917, *Novit. zool.* **24**: 342.

The genitalia of the type were badly damaged before dissection and only the ostium and IX sternite remain.

The specimen figured by the senior author as *maroccana* Roths. (Reiss, 1943) has been examined and compared with the types of *maroccana* Roths. and *lucasi* Le Charles. It was found to be conspecific with *lucasi*. It has the following data: " Museum Paris Maroc Dard Goundafi P. Pallary 1914 ". This specimen is in the Muséum National d'Histoire Naturelle, Paris. There are two further specimens with the same data, one from the Paris Museum, the other from the Reiss collection, Stuttgart. An examination of the genitalia of these two specimens show that they are a species distinct from both *lucasi* and *maroccana*; we describe them below as new.

Zygaena gundafica sp. nov.

Zygaena maroccana Rothschild, Reiss nec Rothschild, 1943, *Z. wien. ent. Ges.* **28**: 359 (*partim*).

♀. 29 mm. Head, thorax and abdomen greenish-black. Antennae black and very strongly clubbed. Legs brownish-black.

Fore wings dark greenish-black; spots clear carmine, 1 and 2 confluent, 3 and 4 confluent. Spot 1 extending along costa and confluent with spot 3; spots 5 and 6 separate. The spots are encircled with narrow whitish rings, except spot 6. Hind wings clear carmine, with a narrow blue-black border widest at apex and terminating just before the tornus. Cilia blue-black.

Holotype ♀ " Museum Paris, Maroc, Dard Goundafi P. Pallary 1914 ", in collection Reiss.

Paratype: 1 female with the same data as the holotype, in Muséum National d'Histoire Naturelle, Paris.

Z. gundafica is closely related to *lucasi* Le Charles, but as no males of *gundafica* are available, we have been unable to compare the genitalia with that of a male *lucasi*. A conspicuous character of *gundafica* is found in the antennae, which are heavily clubbed; this character is unusual in the females of the genus *Zygaena*, but is commonly found in the males. In genitalia, *gundafica* differs from *lucasi* in having the ostium very broad and straight; in *lucasi* the ostium is broad but crescent-shaped. The ostium of *maroccana* is narrow and slightly curved with the lower portion projecting almost to a point. *Z. maroccana* differs in superficial characters in having the red coloration of a scarlet shade whereas in *gundafica* and *lucasi* the red is of a carmine shade.

Subgenus *ZYGAENA* Fabricius

Zygaena laphira Herrich-Schäffer

Zygaena Laphira Herrich-Schäffer, 1851, *Schmett. Europa*, **2**, pl. 16, fig. 108.
Zygaena Laphria Herrich-Schäffer, 1852, *Schmett. Europa*, **6** : 44.
Zygaena Ledereri Rebel, 1901, in Staudinger & Rebel's *Cat. Lep.*, p. 385 (1901), (new name for *laphria* H.-.S).
Zygaena cilicica Burgeff, 1926, *Mitt. münchen. ent. Ges.* **16** : 65, (new name for *ledereri* Rebel [preoccupied]).

It is unfortunate that Herrich-Schäffer's description of 1852 has been given priority over his figure of 1851 as Rebel proposed *ledereri* as a new name for *laphria* H.-S., because the accepted date for the latter name was 1856. It was understood that *laphria* H.-S. was preoccupied by *laphria* Freyer, 1852. However, as *ledereri* Rebel was already preoccupied by *ledereri* Rambur, 1858, Burgeff in 1926 proposed the new name of *cilicica*. According to the rules of nomenclature, the figure of *laphira* H.-S., 1851 is valid, so all subsequent names must be treated as synonyms as shown above.

Zygaena amanica Reiss

Zygaena amanica Reiss, 1935, *Int. ent. Z.* **29** : 191.
Zygaena ledereri Rebel, Dziurzynski nec Rebel, 1908, *Berl. ent. Z.* **53** : 43.
Zygaena cilicica Burgeff, Reiss nec Burgeff, 1930, *Seitz, Suppl.* **2** : 32, pl. 3 h.

A female specimen of *laphira* H.-S. from the Zeller collection has been examined. Zeller received this specimen from Lederer and we believe it to be an authentic specimen. It has the following data : " Laphira Amasia Led. lit. 11/62 ". The genitalia of this specimen were compared with those of an *amanica* Reiss cotype ♀ with the following data : " Syria s. Amanus s. (Düldül Dagh) Jeschildere vi. 33. Coll. Pfeiffer München. " Differences were found in the ostium and ductus bursae. In *laphira*, the ostium is narrower than that in *amanica*. The first portion of the ductus bursae in *laphira* is heavily sclerotized and may be described as flat and triangular in shape but in *amanica* the ductus bursae is tubular and not quite so heavily sclerotized. The spines of the signum in *amanica* are larger than those of *laphira*, and are arranged in groups of from three to six, and also singly. The spines in *laphira* are usually arranged singly or in groups of two or three.

Alberti (1958) places *amanica* as a subspecies of *cilicica* Bgff. (*laphira* H.-S.) but because of the slight differences in the female genitalia we consider them to be distinct, but closely related species. The relationship between *amanica* and *laphira* is comparable with that of *trifolii* Esp. and *lonicerae* Scheven.

Holik & Sheljuzhko (1957) consider *amanica* to be synonymous with *cilicica* Bgff., and for what we consider to be *laphira* H.-S., they have used the name *laphria*

Freyer. Freyer described *laphria* from a specimen from the Caucasus and we consider it to be an aberration of *achilleae* Esper. We cannot see that *laphria* Freyer has any connection with either *amanica* Reiss or *laphira* H.-S. as neither of the latter species are found in the Caucasus.

Zygaena filipendulae Linné ssp. ***ramburii*** Herrich-Schäffer

Zygaena ramburii Herrich-Schäffer, January 1861, *Neue Schmett.*, p. 32, figs. 161, 162.
Zygaena Ramburi Lederer, May, 1861, *Wien. ent. Mschr.* **5** : 151, pl. 1, fig. 10.

Apparently no-one has noticed before that *ramburii* H.-S. was published in January, 1861, four months before *ramburi* Lederer, the latter name appearing in May, 1861. Until now, *ramburii* H.-S. has been treated as a synonym of *ramburi* Led., but now this synonymy must be reversed, and *ramburii* H.-S. taken as the valid name.

Zygaena filipendulae Linné ssp. ***ramburii*** H.-S. ab. ***rosa*** Oberthür

Zygaena rosa Oberthür, 1909, *Lép. Comp.* **3** pl. 22, figs. 106, 107.

We believe *Zygaena rosa* Oberth. to be an aberration of *filipendulae* ssp. *ramburii* H.-S. and treat it as such. We have examined the syntypes of *rosa* in the Oberthür collection. These specimens were taken at Akbès, Syria. Also in the Oberthür collection there is a series of *ramburii* H.-S. taken at Akbès by the same collector.

Holik & Sheljuzhko (1958) use the name of *ramburi* Led. and treat it as a separate species while they consider *rosa* Oberth. to be a subspecies of *ramburi*. Alberti (1958) treats *ramburi* Led. (*ramburii* H.-S.) under *filipendulae* Linné. Whether *ramburii* H.-S. is a separate species from *filipendulae* we do not know ; we could find very little difference in the genitalia. However, it is of interest to note that in the Oberthür collection there is a series of *filipendulae* which were also taken at Akbès, Syria. These specimens, which Oberthür described as *syriaca*, were also taken by the same collector who took the specimens of *ramburii* H.-S. and *rosa* Oberth.

Zygaena filipendulae Linné ssp. ***mersina*** Herrich-Schäffer

Zygaena mersina Herrich-Schäffer, January, 1861, *Neue Schmett.*, p. 32, fig. 163.
Zygaena gurda Lederer, May, 1861, *Wien ent. Mschr.* **5** : 152, pl. 1, fig. 9.

The same ruling must be applied to *mersina* H.-S. and *gurda* Led. must now fall as a synonym, having been published four months later. Holik & Sheljuzhko (1958) treat *gurda* Led. as a subspecies of *ramburi* Led. We have been unable to examine specimens of *mersina* as there are none in the British Museum. Holik & Sheljuzhko (1958 : 195) mention 17 examples in the Oberthür collection which Oberthür regarded as *gurda* Led. We have examined these specimens and found them to be *amanica* Reiss.

Zygaena filipendulae Linné ssp. ***syriaca*** Oberthür

Zygaena Syriaca Oberthür, 1896, *Et. d'Ent.* **20** : 46, pl. 8, figs. 136–138.

Oberthür considered *ramburii* H.-S. different from *ramburi* Led. and, believing the Herrich-Schäffer name to be later, applied the name *syriaca* to the species figured by himself and Herrich-Schäffer. We have examined the type material of *syriaca* in the Oberthür collection and find that it is not the same form as *ramburii* H.-S. Holik & Sheljuzhko (1958) regard it as a subspecies of *filipendulae* with which we agree.

In conclusion, we would like to thank Mr. P. Viette for the loan of the types of *Zygaena lucasi* Le Charles and other material in the Muséum National d'Histoire Naturelle, Paris. Also our thanks to Dr. V. I. Kuznetsov, Zoological Institute, Leningrad, for the loan of the cotype of *Z. smirnovi* Chr.

To Mr. Willi Richter, Stuttgart, we are indebted for the photographs of the specimens illustrated on Pl. 1, figs. 4, 5, 6, 16, 18, 21, and for photomicrographs of some of the genitalia. The rest of the specimens were photographed in the photographic studio of the British Museum. These specimens were enlarged × 2, to reproduce the specimens natural size on the plates. The photographs taken by Mr. Richter were rather more than twice natural size, hence the discrepancy in size of the two figures of *Z. smirnovi*. The same applies to the figures of *Z. mangeri* Bgff., *Z. gundafica* Reiss & Tremewan and *Z. amanica* Reiss.

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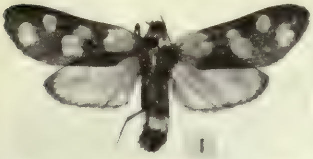
PLATE 22

FIG. 1. *Zygaena rubricollis* Hamps., type ♀, Chitral.
FIG. 2. *Z. manlia* Led., ♀, Astrabad, ex. Zeller coll.
FIG. 3. *Z. smirnovi* Chr., cotype ♂, Nuchur, Christoph coll.
FIG. 4. *Z. smirnovi* Chr., ♂, Askhabad, Reiss coll.
FIG. 5. *Z. mangeri* Bgff., cotype ♂, Paghman Gbg. Kabul, Reiss coll.
FIG. 6. *Z. mangeri* Bgff., cotype ♀, Paghman Gbg. Kabul, Reiss coll.
FIG. 7. *Z. afghana* Moore, ♂, Arbarp, Kabul.
FIG. 8. *Z. afghana* Moore, type ♀, Afghanistan.
FIG. 9. *Z. rothschildi* Reiss, type ♂, Hissar Mountains.
FIG. 10. *Z. rothschildi* Reiss ab. *latecincta* Reiss & Tremewan, type ♂, Hissar Mountains.
FIG. 11. *Z. orana* Dup. ssp. *hajebensis* Reiss & Tremewan, holotype ♂, El Hajeb.
FIG. 12. *Z. orana* Dup. ssp. *hajebensis* Reiss & Tremewan, allotype ♀, El Hajeb.
FIG. 13. *Z. youngi* Roths., type ♂, Azrou.
FIG. 14. *Z. harterti* Roths., type ♂, Azrou.
FIG. 15. *Z. maroccana* Roths., type ♀, Mogador.
FIG. 16. *Z. gundafica* Reiss & Tremewan, type ♀, Dard Goundafi, Reiss coll.
FIG. 17. *Z. lucasi* Le Charles, allotype ♀, Dodes du Todeah, Maroc, Muséum Paris.
FIG. 18. *Z. amanica* Reiss, cotype ♂, Düldül Dagh, Amanus, Reiss coll.
FIG. 19. *Z. laphira* H.-S., ♀, Amasia, ex. Zeller coll.
FIG. 20. *Z. marcuna* Oberth., lectotype ♂, Lambèze.
FIG. 21. *Z. amanica* Reiss, cotype ♀, Düldül Dagh, Amanus, Reiss coll.
FIG. 22. *Z. excelsa* Roths., type ♂, Djebel Mekter.
FIG. 23. *Z. alluaudi* Oberth., lectotype ♂, Bou Angher.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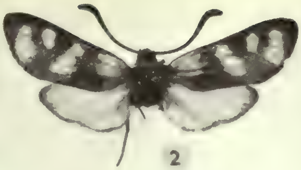
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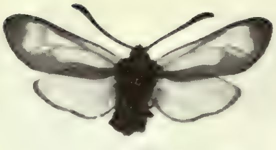
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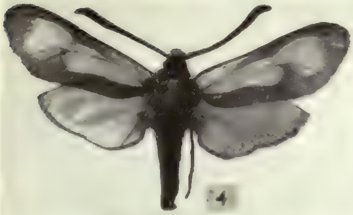
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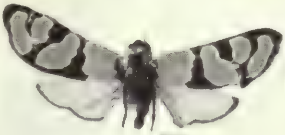
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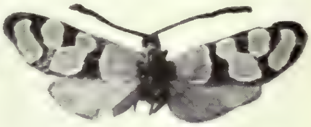
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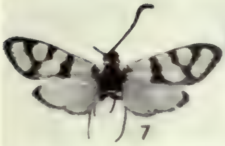
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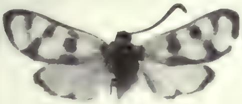
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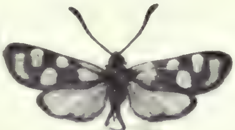
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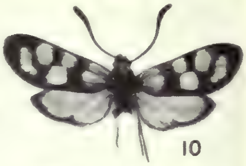
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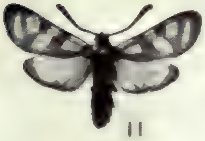
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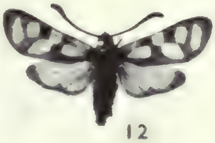
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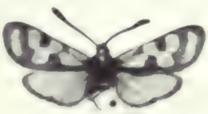
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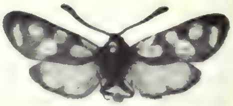
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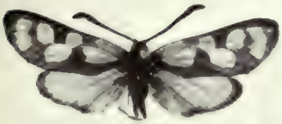
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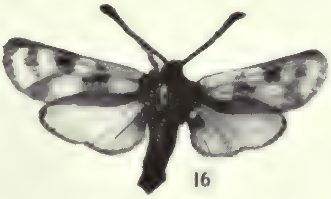
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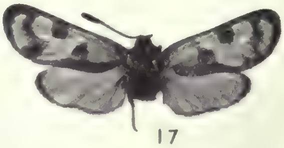
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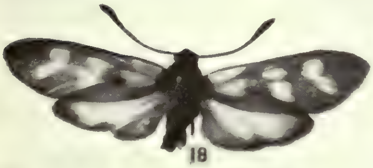
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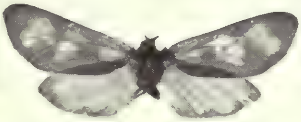
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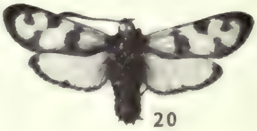
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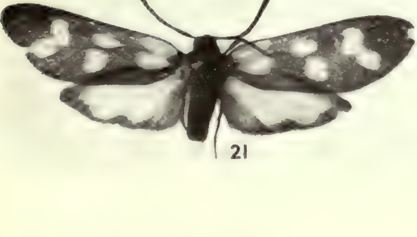
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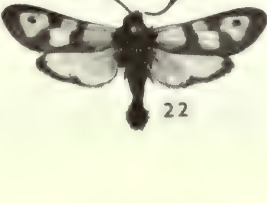
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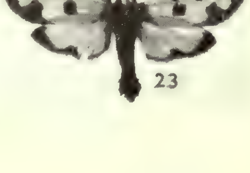
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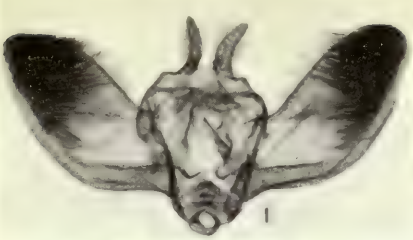
PLATE 23

Fig. 1. *Zygaena afghana* Moore, male genitalia.
Fig. 2. *Z. afghana* Moore, aedoeagus.
Fig. 3. *Z. rothschildi* Reiss, type, male genitalia.
Fig. 4. *Z. rothschildi* Reiss, type, aedoeagus.
Fig. 5. *Z. mangeri* Bgff., cotype, male genitalia.
Fig. 6. *Z. mangeri* Bgff., cotype, aedoeagus.
Fig. 7. *Z. youngi* Roths., type, male genitalia.
Fig. 8. *Z. youngi* Roths., type aedoeagus.
Fig. 9. *Z. harterti* Roths., type, male genitalia.
Fig. 10. *Z. harterti* Roths., type, aedoeagus.
Fig. 11. *Z. smirnovi* Chr., male genitalia.
Fig. 12. *Z. smirnovi* Chr., aedoeagus.
Fig. 13. *Z. smirnovi* Chr., cotype, male genitalia.
Fig. 14. *Z. smirnovi* Chr., cotype, aedoeagus.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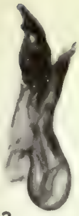
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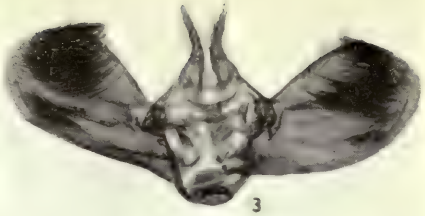
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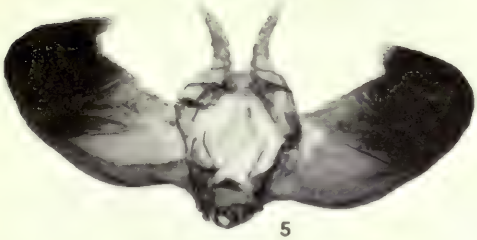
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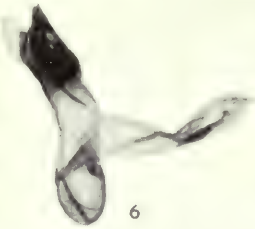
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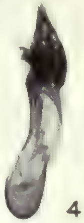
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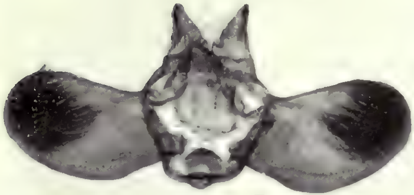
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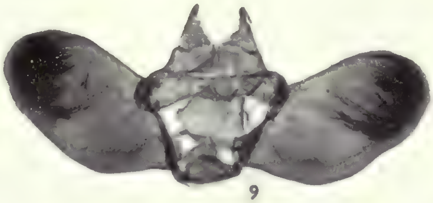
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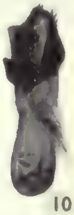
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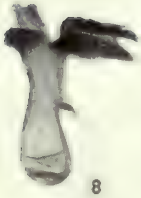
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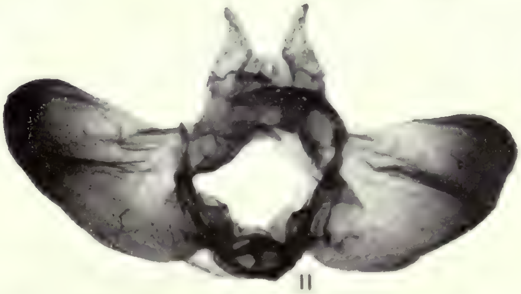
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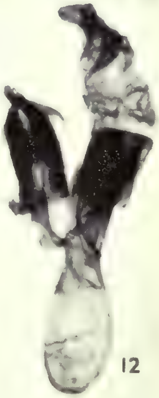
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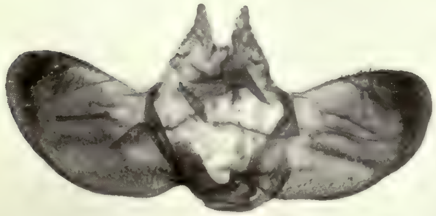
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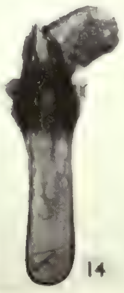
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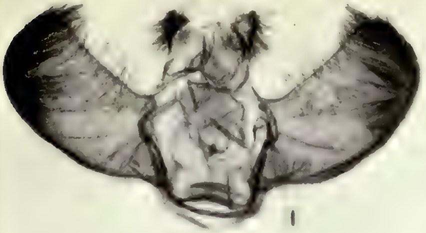
PLATE 24

FIG. 1. *Zygaena excelsa* Roths., type, male genitalia.
FIG. 2. *Z. excelsa* Roths., type, aedoeagus.
FIG. 3. *Z. alluaudi* Oberth., lectotype, male genitalia.
FIG. 4. *Z. alluaudi* Oberth., lectotype, aedoeagus.
FIG. 5. *Z. marcuna* Oberth., lectotype, male genitalia.
FIG. 6. *Z. marcuna* Oberth., lectotype, aedoeagus.
FIG. 7. *Z. rubricollis* Hamps., type, female genitalia.
FIG. 8. *Z. rubricollis* Hamps., type, ostium.
FIG. 9. *Z. manlia* Led., female genitalia.
FIG. 10. *Z. manlia* Led., ostium.
FIG. 11. *Z. afghanica* Reiss, type, female genitalia (ostium).
FIG. 12. *Z. afghana* Moore, type, female genitalia.
FIG. 13. *Z. afghana* Moore, type, ostium.
FIG. 14. *Z. afghana* Moore, type, signum.
FIG. 15. *Z. mangeri* Bgff., cotype, female genitalia.
FIG. 16. *Z. mangeri* Bgff., cotype, bursa and signum.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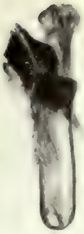
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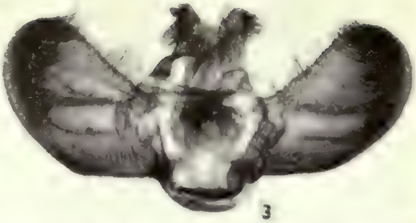
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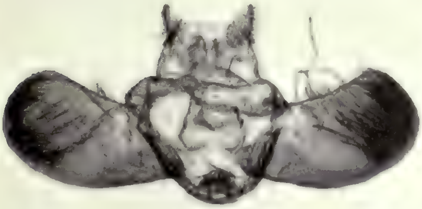
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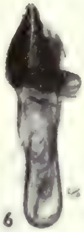
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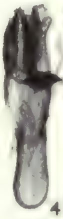
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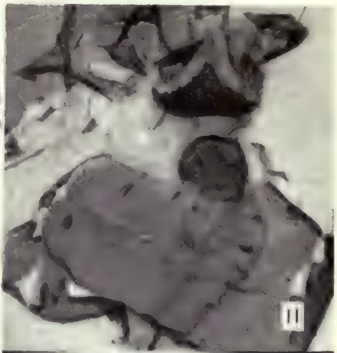
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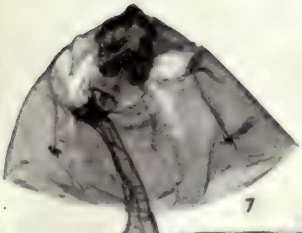
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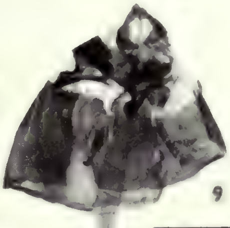
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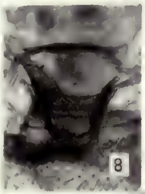
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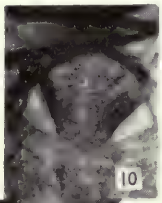
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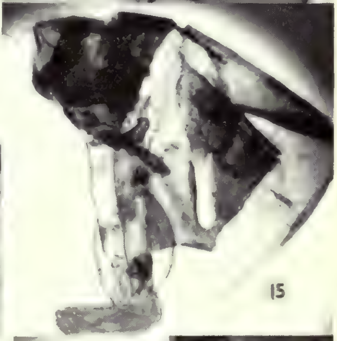
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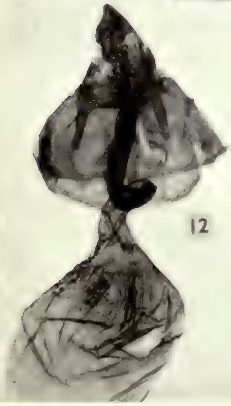
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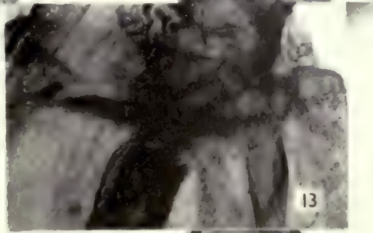
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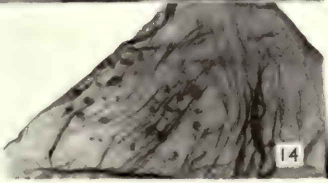
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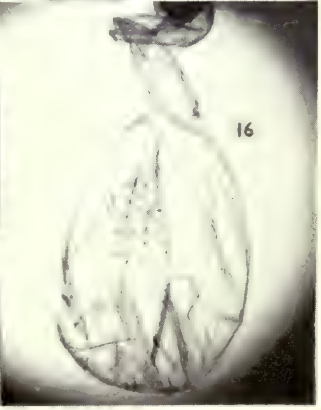
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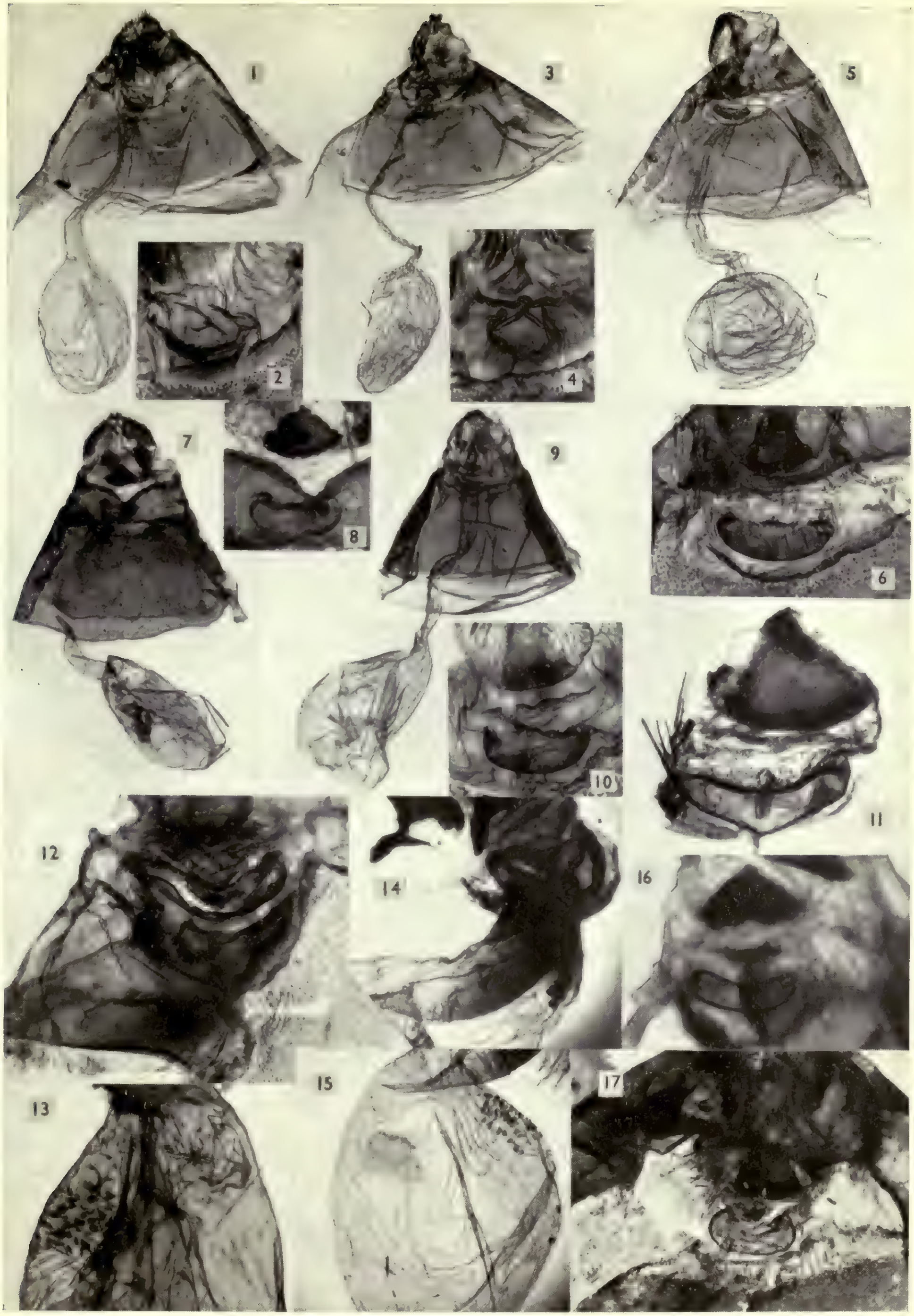
PLATE 25

FIG. 1. *Zygaena excelsa* Roths., female genitalia.
FIG. 2. *Z. excelsa* Roths., ostium.
FIG. 3. *Z. alluaudi* Oberth., female genitalia.
FIG. 4. *Z. alluaudi* Oberth., ostium.
FIG. 5. *Z. marcuna* Oberth., female genitalia.
FIG. 6. *Z. marcuna* Oberth., ostium.
FIG. 7. *Z. youngi* Roths., female genitalia.
FIG. 8. *Z. youngi* Roths., ostium.
FIG. 9. *Z. harterti* Roths., female genitalia.
FIG. 10. *Z. harterti* Roths., ostium.
FIG. 11. *Z. maroccana* Roths., type female, ostium.
FIG. 12. *Z. laphira* H.-S., female, ostium and ductus bursae.
FIG. 13. *Z. laphira* H.-S., signum.
FIG. 14. *Z. amanica* Reiss, cotype, female, ostium and ductus bursae.
FIG. 15. *Z. amanica* Reiss, cotype, signum.
FIG. 16. *Z. gundafica* Reiss & Tremewan, type female, ostium.
FIG. 17. *Z. lucasi* Le Charles, allotype female, ostium.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